

University Of Alberta



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# WESTERN SCHOOL MATHEMATICS

## WORKBOOK

TEACHERS' EDITION



QA

36.5

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CURR

Accompanying  
AV material  
at  
QA 36.5  
E3415 1969  
CURR AV



# Investigating School Mathematics

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**Workbook  
TEACHERS' EDITION**



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see the inside back cover.

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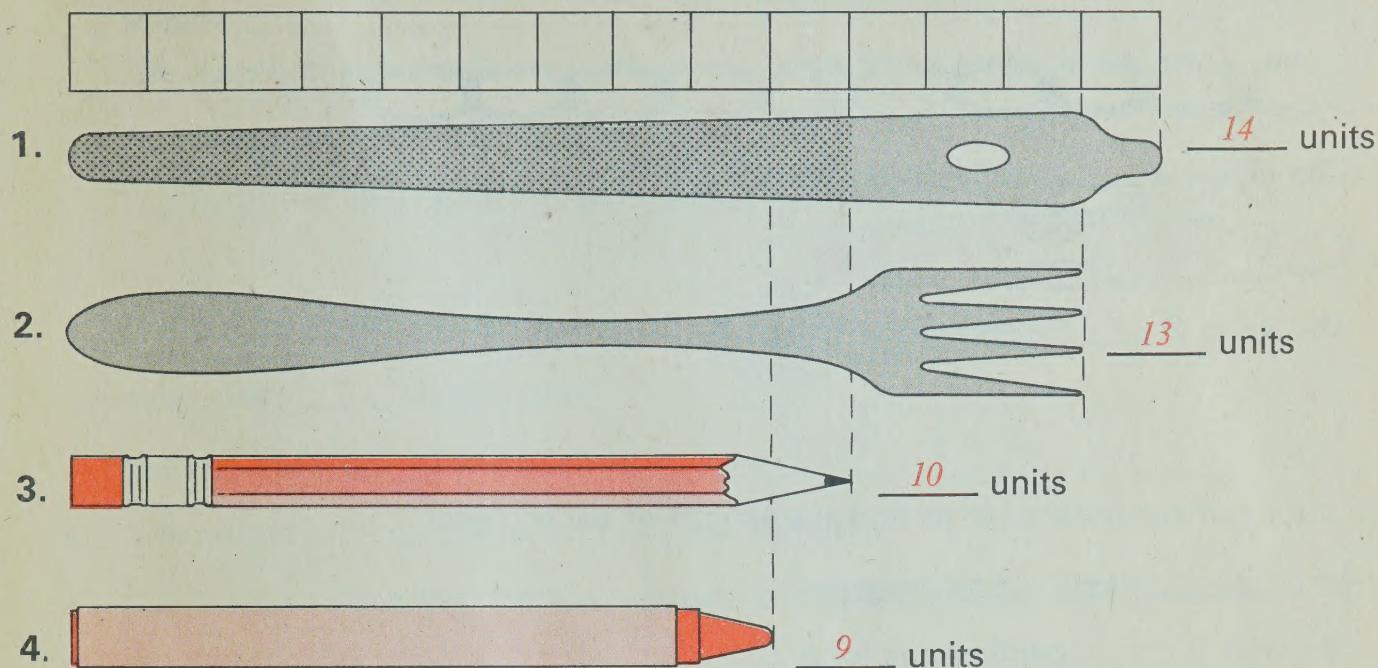
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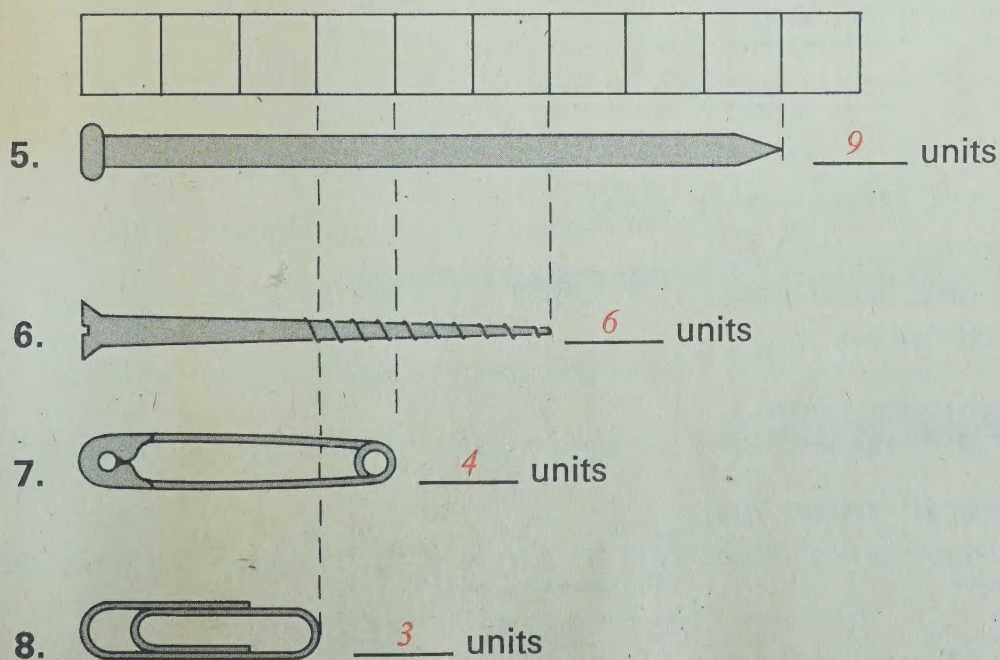




How long is each object? Count the number of strip units.



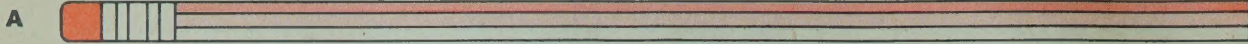
How many strip units long is each object?



2707532



1. Use your **centimetre** ruler to find the length of each object.



The pencil is 15 centimetres long.



The chain is 13 centimetres long.



The knife is 8 centimetres long.

2. Use your **centimetre** ruler to find the length of each object.



The nail is 7 centimetres long.

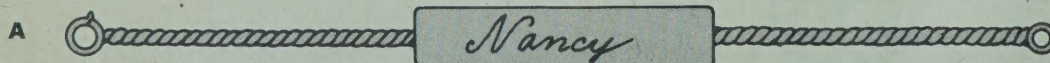


The strip is 10 centimetres long.

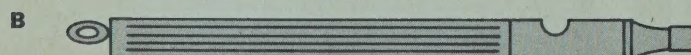


The spring is 4 centimetres long.

3. Use your **centimetre** ruler to measure each object.



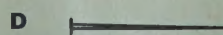
It is almost 13 centimetres long.



The whistle is 8 centimetres long.

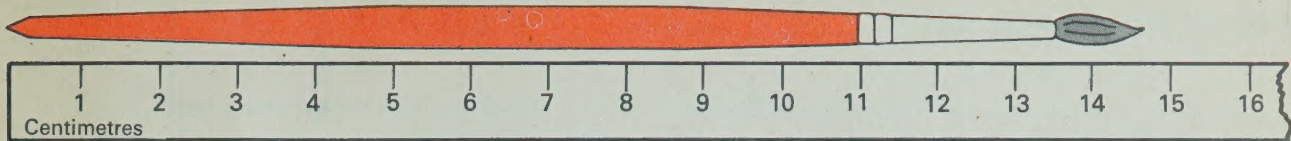


The needle is 5 centimetres long.



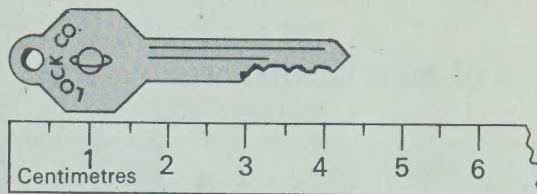
The pin is 2 centimetres long.





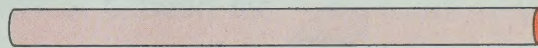
1. A The length of the brush is more than 14 centimetres but less than 15 centimetres  
 B Is it closer to 14 or 15? 15  
 C The length of the brush (to the nearest centimetre) is 15 centimetres.

2. A The length of the key is more than 4 centimetres but less than 5 centimetres.

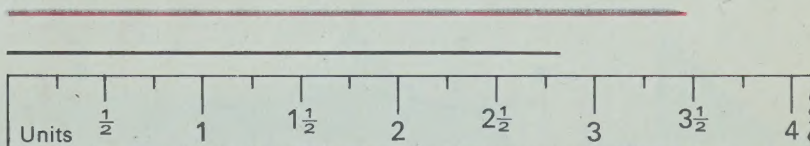


- B It is closer to 4 than to 5 centimetres.  
 C The length of the key (to the nearest centimetre) is 4 centimetres.

3. Use your centimetre ruler to find the length of the stick to the nearest centimetre. 7 centimetres




4. The length of the black segment is between the half-unit marks  $2\frac{1}{2}$  and 3.



- A Is the length of the black segment closer to  $2\frac{1}{2}$  or to 3? 3  
 B The length of the black segment (to the nearest half unit) is 3 units.  
 C The length of the colored segment is between 3 and  $3\frac{1}{2}$  units.  
 D The length of the colored segment (to the nearest half unit) is  $3\frac{1}{2}$  units.

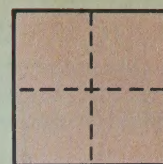
5. Find the length of each object to the nearest half centimetre.

A  10 centimetres

B  6 centimetres




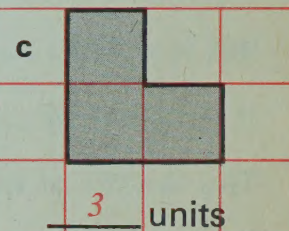
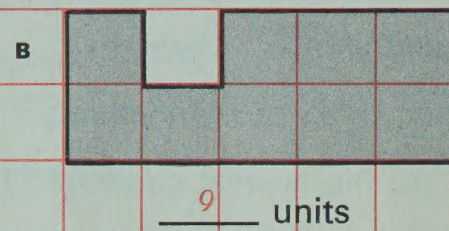
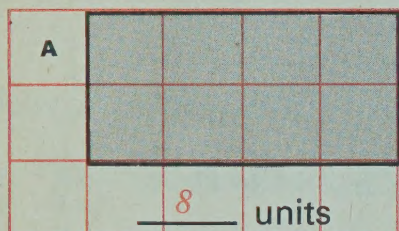
1. How many gray squares are needed to cover the colored region? 4





The number of square units needed to "cover" a region is called the **area** of the region.

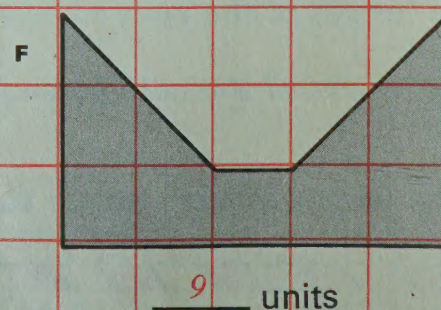
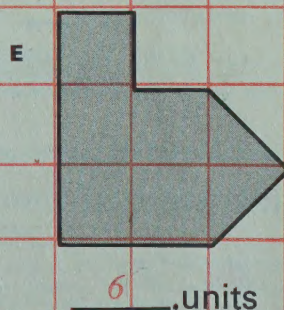
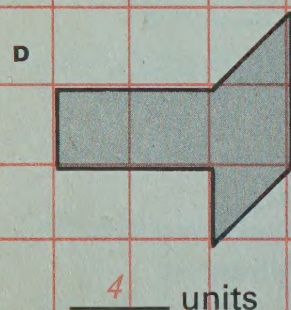
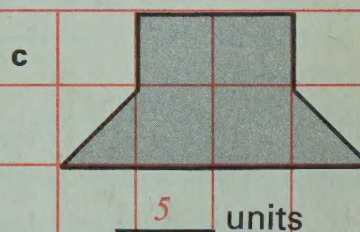
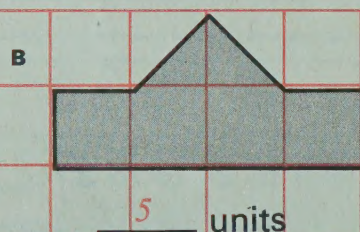
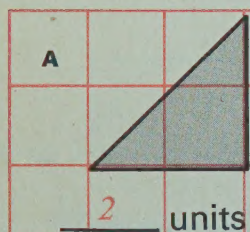
The **area** of the colored region is 4 square units.

2. Give the area of each shaded region. Use  as your unit.



3. How many of these  are needed to cover ? 2

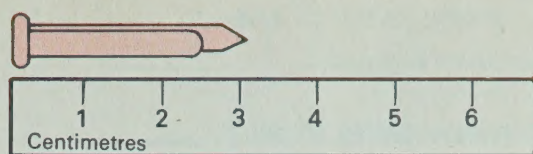
4. Give the area of each region.





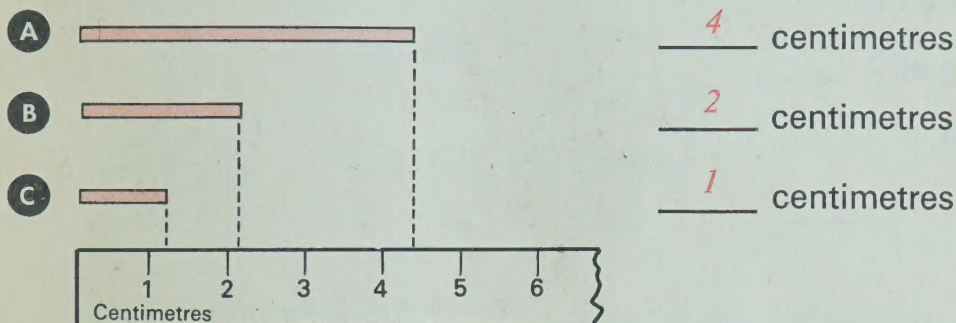
1. A Is the end of the paper fastener closer to 3 cm or 4 cm?

3 cm

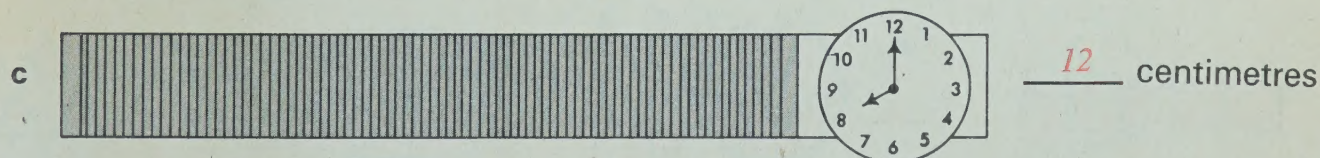
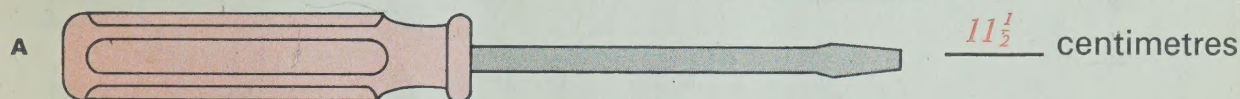


- B The length of the paper fastener is 3 centimetres.

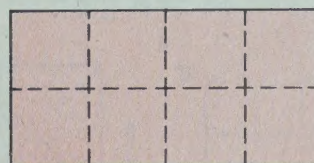
2. Give the length of each bar to the nearest centimetre.



3. Use your centimetre ruler to find the length of each object to the nearest half centimetre.



4. A If is the unit, what is the area of the rectangle? 8 units.



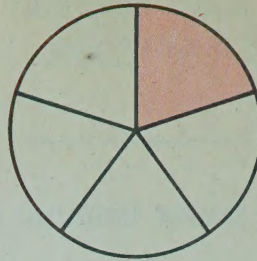
- B The area of  $\frac{1}{2}$  of it is 4 units.

- C The area of  $\frac{1}{4}$  of it is 2 units.

- D The area of  $\frac{3}{4}$  of it is 6 units.



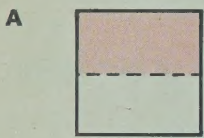
1. A How many parts of the circle are colored? 1  
 B How many parts in all? 5  
 C Give the fraction that tells what part of the circle is colored.  $\frac{1}{5}$



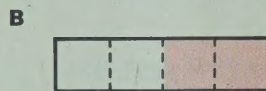
2. A How many glasses are full? 5  
 B How many glasses in all? 8  
 C Give the fraction that tells what part of the glasses are full.  $\frac{5}{8}$



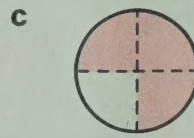
3. Circle the fraction that tells what part of each region is colored.



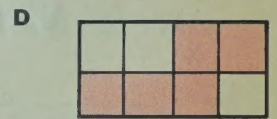
$\frac{1}{2}$   $\frac{3}{4}$   $\frac{1}{4}$



$\frac{2}{4}$   $\frac{1}{3}$   $\frac{3}{4}$

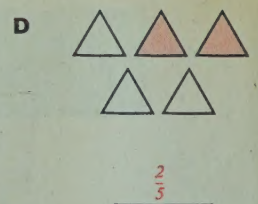
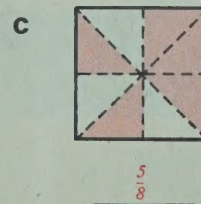
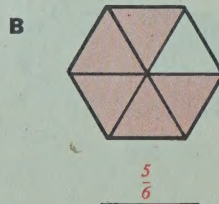
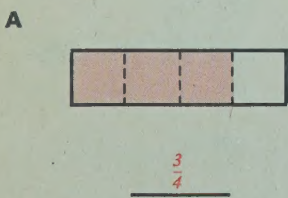


$\frac{1}{4}$   $\frac{3}{3}$   $\frac{3}{4}$

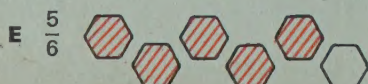
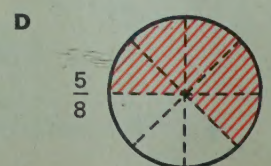
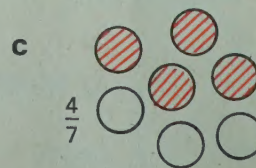
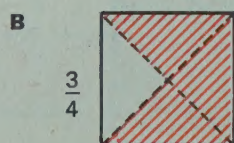
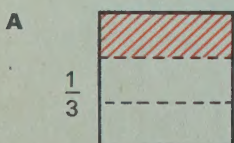


$\frac{3}{4}$   $\frac{5}{8}$   $\frac{3}{8}$

4. Give the fraction that tells what part of each region or set is colored.



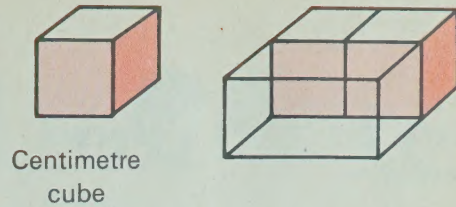
5. The fraction next to each region or set tells what part you should color.






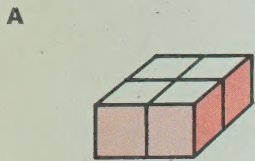
1. How many cubes will the box hold? 4

The number of cubes needed to "fill" a box is called the **volume** of the box.

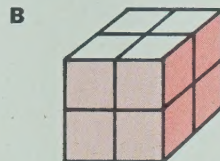


The **volume** of the box is 4 centimetre cubes.

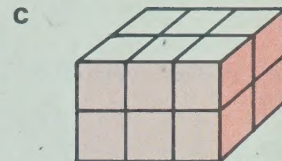
2. The unit used in the exercises below is . Give the volume of each figure.



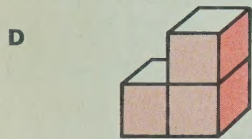
4 centimetre cubes



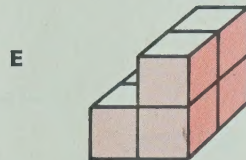
8 centimetre cubes



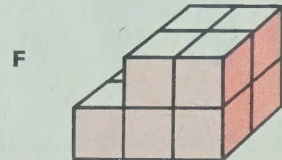
12 centimetre cubes



3 centimetre cubes



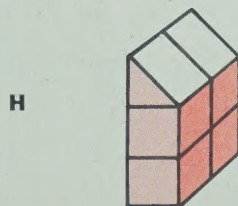
6 centimetre cubes



10 centimetre cubes



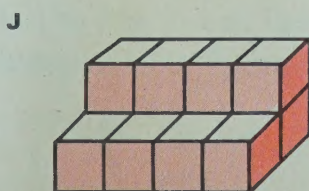
2 centimetre cubes



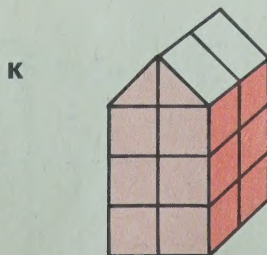
5 centimetre cubes



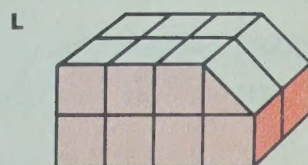
3 centimetre cubes



12 centimetre cubes



14 centimetre cubes

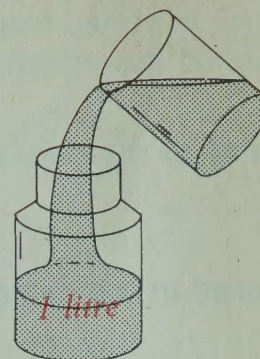


15 centimetre cubes



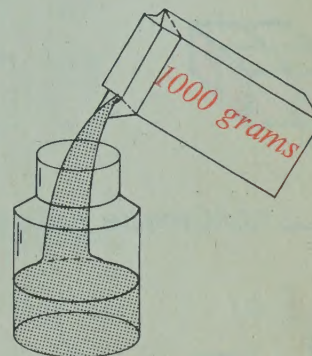
1. A litre will hold 1 kilogram of water.

- A A litre contains 1 kilogram of water.
- B Two kilograms of water could be held in a 2-litre container.



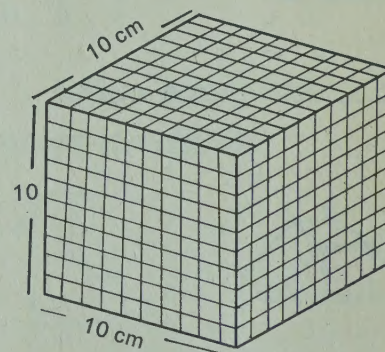
2. A litre of water weighs 1000 grams.

- A Half a litre weighs 500 grams.
- B 1000 grams is equal to 1 kilograms.



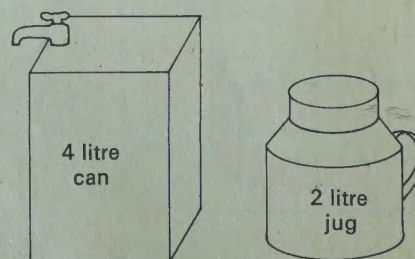
3. There are 1000 cubic centimetres in a litre.

- A A  $\frac{1}{2}$ -litre is equal to 500  $\text{cm}^3$ .
- B A 2-litre container is equal to 2000  $\text{cm}^3$ .



4. A 4-litre can and a 2-litre jug.

- A The can would hold 2 jugs.
- B Four jugs could be emptied into 2 cans.



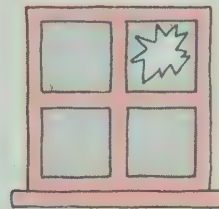


1. Three boys. Two girls.  
Give the fraction that  
tells what part of the  
children are boys.  $\frac{3}{5}$

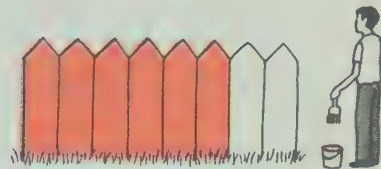


2. A What fraction tells  
what part of the  
window is broken?  $\frac{1}{4}$

- B What part of the  
window is not broken?  $\frac{3}{4}$



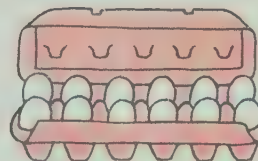
3. Mr. James painted  $\frac{3}{4}$  of  
his fence. What part  
does he have left to paint?  $\frac{1}{4}$



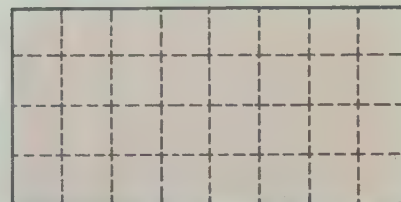
4. Six ice cream bars. Dave  
ate  $\frac{1}{3}$  of them. How many  
did he eat? 2



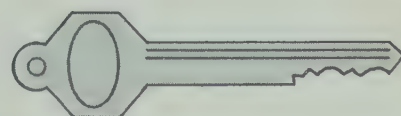
5. One dozen eggs. Joan used  
 $\frac{1}{2}$  of them to make cookies.  
How many eggs did she use? 6



6. How many tiles are needed  
to cover the floor? 32



7. Is the key 5 cm long, less than 5 cm or  
longer than 5 cm? 5 cm long



8. How many cubes are in  
the stack? 15

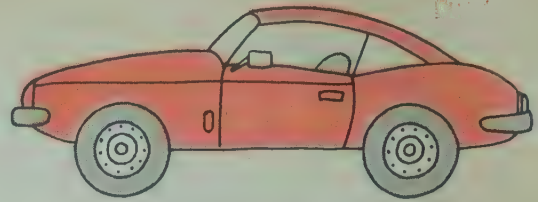




1. Estimate then use your centimetre ruler to find the length of the car

A to the nearest centimetre. 7

B to the nearest half centimetre.  $6\frac{1}{2}$



2. Using the unit  $\square$ , give the area of each shaded region.



12 units

17 units

12 units

14 units

3. Give the volume of each figure. Use  $\square$  as your unit.



6 units



12 units



10 units



4 units

4. Give the fraction that tells what part of each region or set is colored.



$\frac{1}{4}$



$\frac{5}{6}$

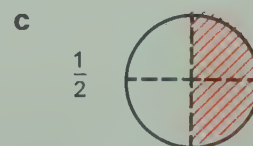
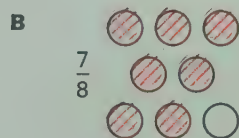
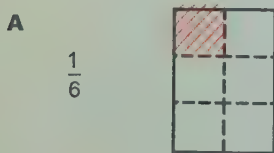


$\frac{1}{3}$



$\frac{3}{5}$

5. Color the part of the region or set indicated by the fraction.



## CHANGE OF PACE

Use the equation

$$17 - 9 = 8$$

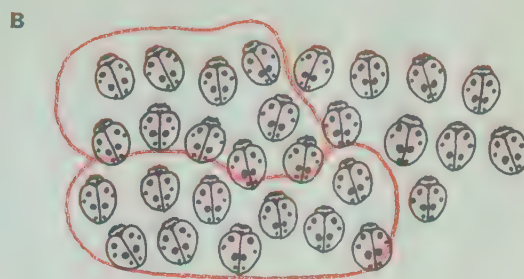
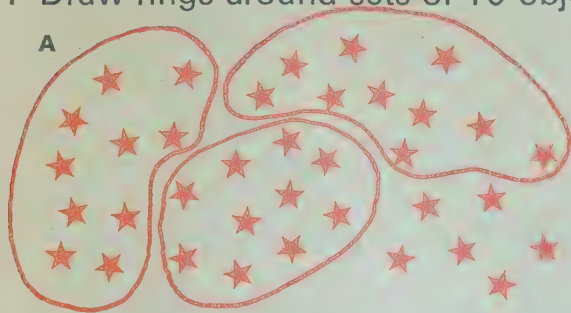
to fill in the blanks in the story.

The king had 17 horses  
and only 9 men. He said,  
"My goodness, I have 8  
more horses than men!"

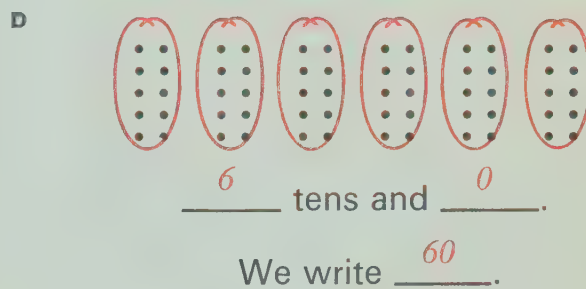
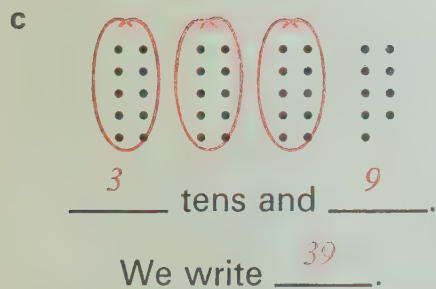
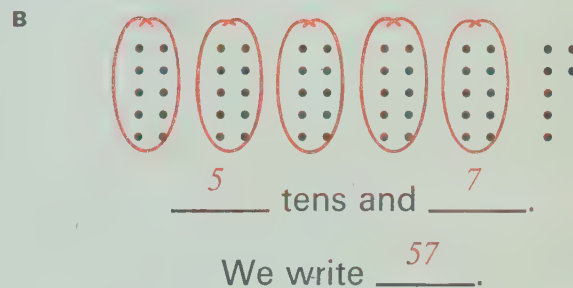
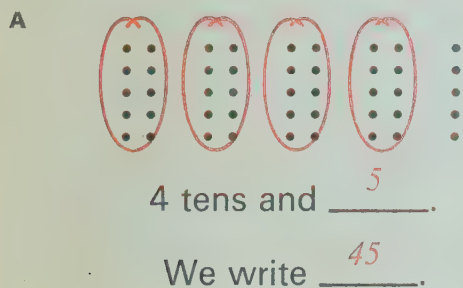




1. Draw rings around sets of 10 objects.



2. Write the correct numeral in each blank.



3. Write the correct 2-digit numeral in each blank.

A 3 tens and 2 32

D 5 tens and 5 55

B 1 ten and 7 17

E 6 tens and 3 63

C 4 tens and 1 41

F 9 tens and 0 90

4. Write the correct digit in each blank.

A 39 means 3 tens and 9.

D 67 means 6 tens and 7.

B 76 means 7 tens and 6.

E 28 means 2 tens and 8.

C 40 means 4 tens and 0.

F 80 means 8 tens and 0.





For 9 tens we write 90.

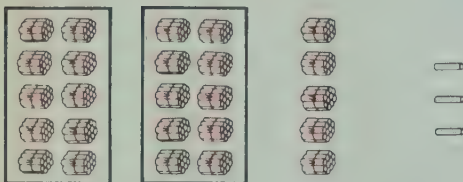


For 10 tens we write 100.

2. Since we write 100 for **one** hundred, we write 200 for **two** hundreds.

For **three** hundreds, we write 300. For **nine** hundreds we write 900.

3. Set A Set B Set C Set D



Each bundle has 10 sticks.

A There are 100 sticks in set A.

B There are 100 sticks in set B.

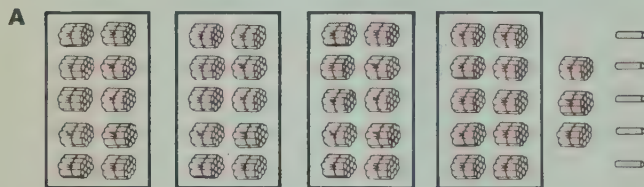
C There are 5 sticks in set C.

D There are 3 sticks in set D.

E In all, there are 2 sets of 100, 5 sets of 10, and 3 extra sticks.

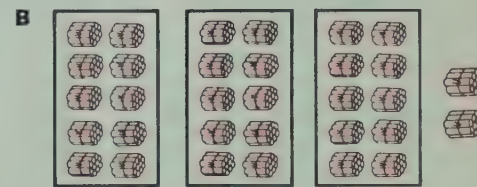
F To tell how many, we write 253.

4. Write the correct numeral in each blank. There are 10 sticks in each bundle.



4 hundreds, 3 tens, and 5

To tell how many, we write 435.



3 hundreds, 2 tens, and 0

We write 320.

5. Write the correct digit in each blank.

A 567 means 5 hundreds, 6 tens, and 7.

B 814 means 8 hundreds, 1 tens, and 4.

C 604 means 6 hundreds, 0 tens, and 4.

6. Write the correct 3-digit numeral in each blank. (*h* stands for hundreds, *t* for tens.)

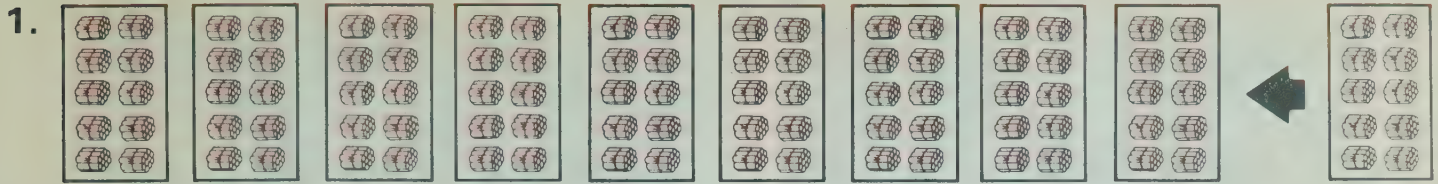
A 4*h*, 2*t*, and 6 426

C 6*h*, 9*t*, and 0 690

B 9*h*, 3*t*, and 1 931

D 3*h*, 0*t*, and 7 307

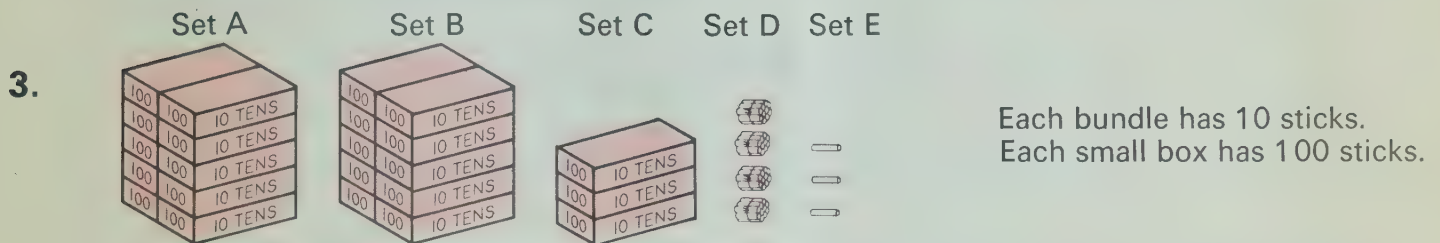




For **9** hundreds, we write 900. For **10** hundreds, we write 1000.

2. Since we write 1000 for **one** thousand, we write 2000 for **two** thousand.

For **four** thousand we write 4000. For **nine** thousand we write 9000.



A There are 1000 sticks in set A.

B There are 1000 sticks in set B.

C There are 300 sticks in set C.

D There are 40 sticks in set D.

E There are 3 sticks in set E.

F In all, there are 2 sets of 1000,

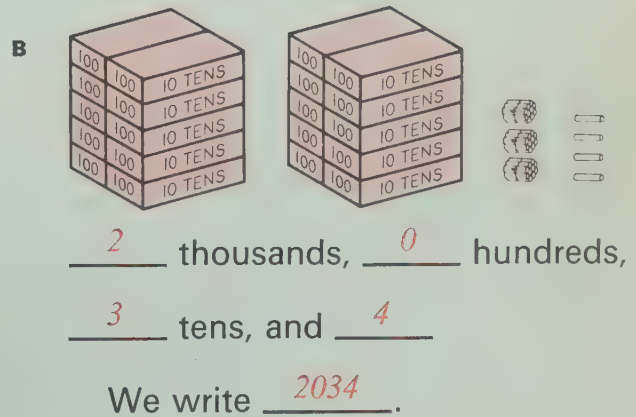
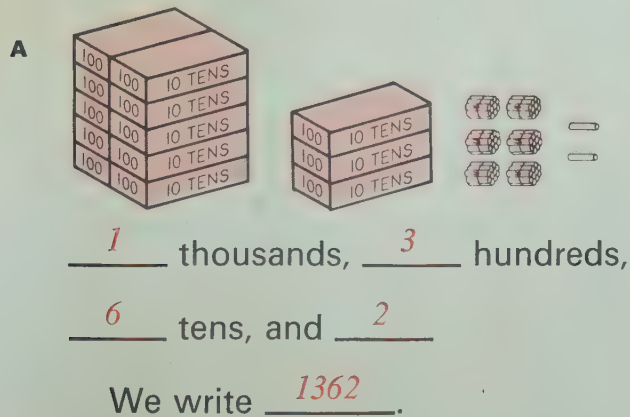
3 sets of 100,

4 sets of 10,

and 3 extra sticks.

G To tell how many, we write 2343.

4. Write the correct numeral in each blank.



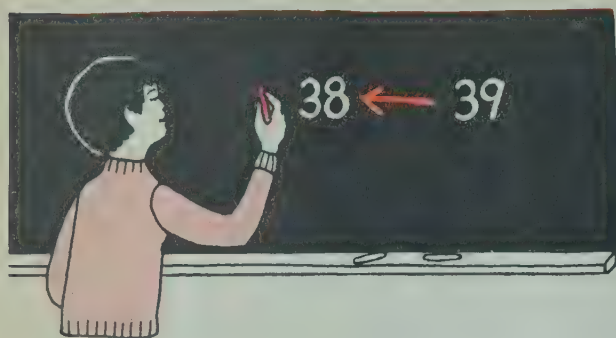
5. Write **thousands**, **hundreds**, **tens**, or **ones** in the blank to tell what the red digit in each numeral stands for.

A 4**5**69 thousands

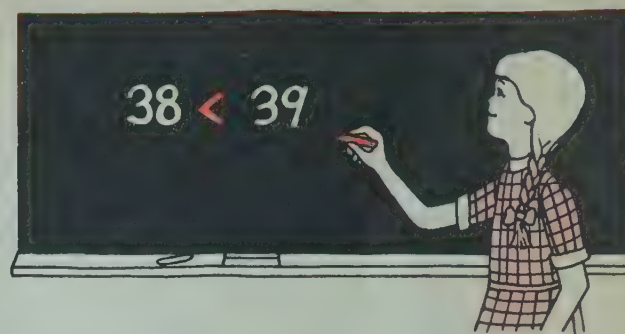
B 134**8** tens

C 69**8**8 hundreds






John used colored chalk to draw an arrow that points to the smaller number.



Jane used a short cut and drew only the head of the arrow to point to the smaller number.


For  $38 < 39$  we read "38 is less than 39."

For  $39 > 38$  we read "39 is greater than 38."

1. In each , draw an arrow that points to the smaller number. Then write **greater** or **less** in each blank.

A 5  10

5 is LESS than 10.

C 320  32

320 is greater than 32.

E 10  9

10 is greater than 9.

B 39  49

39 is less than 49.

D 34  43


34 is less than 43.

F 54  47

54 is greater than 47.


2. Put the correct mark (< or >) in each .

A 47  54


D 850  820

G 1343  1443

B 136  145

E 461  641

H 6680  6608

C 332  323

F 425  445

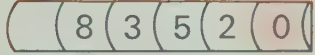
I 6749  6794

3. Write these numbers in order from the smallest to the largest.

934      431      19      143      1394      93      194      9413

19    93    143    194    431    934    1394    9413



1. A If the odometer on your car looks like this  when you leave home, what will the odometer show when you are 1 kilometre away from home? 8313 Odometer

B When you are 10 kilometres from home, the odometer will show 8362.

C When you are 100 kilometres from home, it will show 8417.

D When you are 1000 kilometres from home, it will show 9352.

2. The red digit in each numeral tells how many ones (*o*), tens (*t*), hundreds (*h*) or thousands (*th*) in each numeral. Write *o*, *t*, *h*, or *th* in each blank.

A 9736 h

C 6874 o

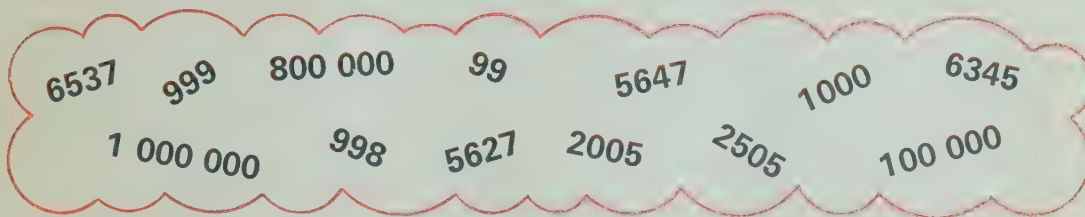
E 4986 h

B 8034 th

D 7502 t

F 2934 t

3. Use the numerals in the cloud to fill in the blanks below.



A Which is the numeral for **six thousand, three hundred forty-five**? 6345

B Which number is 1 more than 99 999? 100 000

C Which number is between 1500 and 2500? 2005

D Which number is 10 less than 5637? 5627

E Which number is 1 less than 999? 998

F Which numbers are greater than 500 000? 800 000 and 1 000 000

G Which numbers are less than 1000? 99 and 999

4. Write the numeral for each exercise.

A Three hundred seventy-four 374

B Forty-five thousand, eight hundred thirty-one 45 831

C Five hundred sixteen thousand, one hundred nine 516 109



1. To tell how many sticks are in the picture, we write 246.



2. Write the correct numeral in each blank.

A One hundred is 10 tens.

B One thousand is 10 hundreds.

3. Write **thousands, hundreds, tens, or ones** in the blank to tell what the red digit in each numeral stands for.

A 56 tens

C 3856 thousands

B 856 ones

D 956 hundreds

4. Write the correct digit in each blank.

A 465 means 4 hundreds, 6 tens, and 5.

B 2708 means 2 thousands, 7 hundreds, 0 tens, and 8.

5. A For **seven hundred twenty-nine**, we write 729.

B For **six thousand, three hundred forty**, we write 6340.

6. Put the correct mark (< or >) in each .

A 65 68

C 352 342

E 876 871

G 4000 3999

B 56 86

D 295 301

F 990 1001

H 6258 5765

## CHANGE OF PACE

Find the pattern and give three more numbers for each sequence.

1. 2, 4, 6, 8, 10, 12, 14, 16

6. 1, 1, 2, 2, 3, 3, 4, 4, 5

2. 1, 3, 5, 7, 9, 11, 13, 15

7. 30, 28, 26, 24, 22, 20, 18

3. 0, 4, 0, 4, 0, 4, 0, 4

8. 1, 5, 9, 13, 17, 21, 25, 29

4. 0, 5, 10, 15, 20, 25, 30, 35

9. 0, 7, 14, 21, 28, 35, 42

5. 1, 2, 4, 8, 16, 32, 64

10. 0, 1, 4, 9, 16, 25, 36, 49



1. Write the letter (A, B, C, or D) of the picture to answer each question.

A For which picture do you think about adding 3 to 4? A



B For which picture do you think about subtracting 3 from 7? C



C For which picture do you think about adding 4 to 3? D



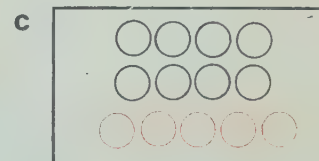
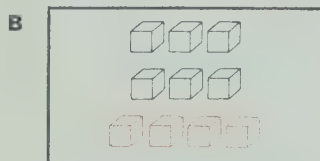
D Which picture shows that there are three dots left? B



2. Solve each equation. The pictures above may help you.

A  $4 + 3 = \underline{7}$     B  $7 - 3 = \underline{4}$     C  $3 + 4 = \underline{7}$     D  $7 - 4 = \underline{3}$

3. Write two addition and two subtraction equations for each set.



$5 + 4 = \underline{9}$

$6 + 4 = \underline{10}$

$8 + 5 = \underline{13}$

$4 + 5 = \underline{9}$

$4 + 6 = \underline{10}$

$5 + 8 = \underline{13}$

$9 - 4 = \underline{5}$

$10 - 6 = \underline{4}$

$13 - 5 = \underline{8}$

$9 - 5 = \underline{4}$

$10 - 4 = \underline{6}$

$13 - 8 = \underline{5}$

4. A Write an equation that tells how many objects in sets A and B together.  $9 + 5 = 14$

B Write an equation that tells how many more objects in set A than in set B.  $9 - 5 = 4$



Set A



Set B



## Addition and Subtraction on the Number Line



The first jump was 6 units long.

$$6 + \underline{5} = \boxed{11}$$

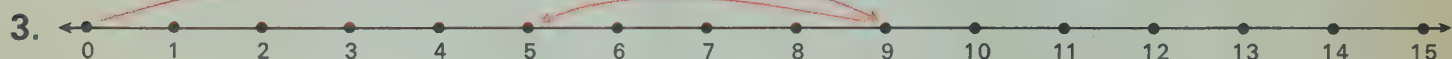
The second jump was 5 units long.



The first jump was 5 units long.

$$5 + \underline{8} = \boxed{13}$$

The second jump was 8 units long.



The jump to the right was 9 units long.

$$9 - \underline{4} = \boxed{5}$$

The jump to the left was 4 units long.



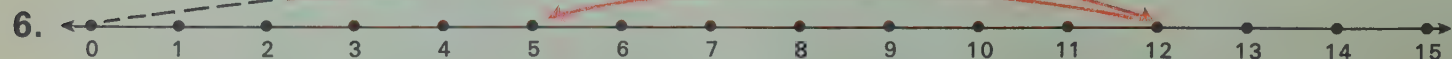
The jump to the right was 13 units long.

$$13 - \underline{8} = \boxed{5}$$

The jump to the left was 8 units long.



Write an equation for the number-line picture above.  $7 + 8 = 15$



Show the jumps on the number line for the equation  $12 - 7 = \boxed{5}$   
Then solve the equation.



These two numbers are **addends**  $\begin{array}{r} 3 \\ +4 \\ \hline 7 \end{array}$   
This is their **sum**  $\rightarrow 7$

Addends Sum  
 $3 + 4 = 7$

In the equation  $\square + 2 = 7$ , one addend is missing.

To solve the equation, think "What number plus 2 equals 7?"

1. Find the missing addends.

A  $\square + 3 = 5$

C  $\square + 2 = 9$

E  $6 + \square = 10$

B  $3 + \square = 8$

D  $1 + \square = 6$

F  $\square + 5 = 7$

You can think of subtraction as finding a missing addend.

$10 - 6 = \square$

Think:

"What number plus 6 equals 10?"  
 $\square + 6 = 10$

2. Find the differences by thinking about missing addends.

A  $7 - 2 = \square$

C  $10 - 8 = \square$

E  $5 - 4 = \square$

B  $4 - 1 = \square$

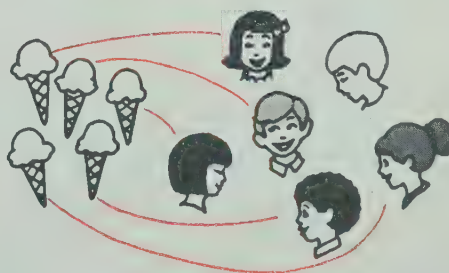
D  $9 - 5 = \square$

F  $8 - 3 = \square$

3. How many more children than ice cream cones?

$\underline{\quad 1 \quad}$

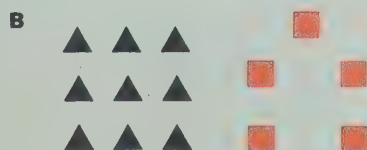
Solve the equation.  $6 - 5 = \square$



4. For each pair of sets, write a subtraction equation to tell how many more objects in one set than in another.



$\underline{6} - \underline{4} = \square$



$\underline{9} - \underline{5} = \square$



$\underline{10} - \underline{5} = \square$



1. Fill in the squares along the dotted line.
2. The sum  $3 + 2$  is given. Write the sum  $2 + 3$  in the correct square.
3. The sum  $5 + 2$  is given. Write the sum  $2 + 5$ .
4. The sum  $7 + 3$  is given. Write the sum  $3 + 7$ .
5. Fill in the gray part of the table.
6. Use the **order principle** and fill in the rest of the table.

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	
3	3	4	5	6	7	8	9	10		
4	4	5	6	7	8	9	10			
5	5	6	7	8	9	10				
6	6	7	8	9	10					
7	7	8	9	10						
8	8	9	10							
9	9	10								

7. Find the sums. The colored blocks tell you which numbers to add first.

A  $3 + 4 + 2 = \boxed{9}$

C  $7 + 3 + 4 = \boxed{14}$

E  $99 + 1 + 35 = \boxed{135}$

B  $3 + 4 + 2 = \boxed{9}$

D  $7 + 3 + 4 = \boxed{14}$

F  $99 + 1 + 35 = \boxed{135}$

8. Find the sums. The colored blocks show the addends that are added first.

A  $1 + 3 + 5 = \boxed{9}$

B  $3 + 5 + 1 = \boxed{9}$

C  $1 + 5 + 3 = \boxed{9}$

$3 + 1 + 5 = \boxed{9}$

$5 + 3 + 1 = \boxed{9}$

$5 + 1 + 3 = \boxed{9}$

$5 + 1 + 3 = \boxed{9}$

$1 + 3 + 5 = \boxed{9}$

$3 + 1 + 5 = \boxed{9}$

$5 + 3 + 1 = \boxed{9}$

$1 + 5 + 3 = \boxed{9}$

$3 + 5 + 1 = \boxed{9}$

9. Find the sums. Rearrange the addends in any way you wish.

A  $\begin{array}{c} \boxed{3} \quad \boxed{5} \\ \boxed{7} \end{array} \quad \text{Sum} \quad \boxed{15}$

B  $\begin{array}{c} \boxed{3} \quad \boxed{2} \\ \boxed{8} \end{array} \quad \text{Sum} \quad \boxed{13}$

C  $\begin{array}{c} \boxed{6} \quad \boxed{4} \quad \boxed{3} \\ \boxed{7} \end{array} \quad \text{Sum} \quad \boxed{20}$

Because of the **rearranging** principle, we can change the order and grouping of the addends and still get the same sum.

10. Find the sums. Look for tens.

A  $\begin{array}{r} 3 \\ 7 \\ + 5 \\ \hline 15 \end{array}$

B  $\begin{array}{r} 7 \\ 5 \\ + 3 \\ \hline 15 \end{array}$

C  $\begin{array}{r} 4 \\ 6 \\ + 9 \\ \hline 19 \end{array}$

D  $\begin{array}{r} 6 \\ 9 \\ 1 \\ + 4 \\ \hline 20 \end{array}$

E  $\begin{array}{r} 7 \\ 8 \\ 2 \\ + 1 \\ \hline 18 \end{array}$

F  $\begin{array}{r} 9 \\ 4 \\ 6 \\ + 1 \\ \hline \end{array}$



1. Find the sums. Look for tens.

A  $8 + 2 + 3 = \boxed{13}$

C  $5 + 2 + 5 = \boxed{12}$

E  $8 + 2 + 7 = \boxed{17}$

B  $7 + 3 + 1 = \boxed{11}$

D  $9 + 6 + 1 = \boxed{16}$

F  $5 + 1 + 9 = \boxed{15}$

2. Study each picture carefully. Then give the missing number in each

A To add 8 and 6,

Think:



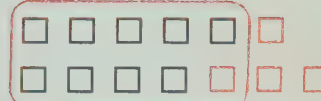
$10 + 4$



$8 + 6 = \boxed{14}$

B To add 9 and 4,

Think:



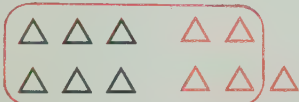
$10 + 4$



$9 + 4 = \boxed{13}$

C To add 6 and 5,

Think:



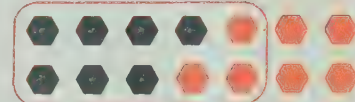
$10 + 1$



$6 + 5 = \boxed{11}$

D To add 7 and 7,

Think:



$10 + 4$



$7 + 7 = \boxed{14}$

3. Give the missing number in each . Then find the sum.

A  $8 + 4 = 10 + \boxed{2}$

$8 + 4 = \underline{12}$

C  $8 + 6 = 10 + \boxed{4}$

$8 + 6 = \underline{14}$

E  $9 + 7 = 10 + \boxed{6}$

$9 + 7 = \underline{16}$

B  $9 + 5 = 10 + \boxed{4}$

$9 + 5 = \underline{14}$

D  $7 + 8 = 10 + \boxed{5}$

$7 + 8 = \underline{15}$

F  $6 + 9 = 10 + \boxed{5}$

$6 + 9 = \underline{15}$

4. A Since  $5 + 5 = \boxed{10}$ ,

we know  $5 + 6 = \boxed{11}$ .

B Since  $8 + 8 = \boxed{16}$ ,

we know  $8 + 9 = \boxed{17}$ .

5. Complete the table.

+	5	6	7	8	9
7	12	13	14	15	16
8	13	14	15	16	17
9	14	15	16	17	18



To find  $12 - 7$ , it helps to think →

"What number plus 7 equals 12?"

$$\boxed{\phantom{0}} + 7 = 12$$

You can find  
this difference

$$12 - 7 = \boxed{\phantom{0}}$$

when you find

this addend. →

$$\boxed{\phantom{0}} + 7 = 12$$



1. Write the missing numbers in the equations above.

*The answer is 5 in all cases.*

2. Write the correct number in each  $\boxed{\phantom{0}}$ .

A  $\boxed{4} + 5 = 9$

C  $\boxed{5} + 8 = 13$

E  $\boxed{5} + 9 = 14$

$9 - 5 = \boxed{4}$

$13 - 8 = \boxed{5}$

$14 - 9 = \boxed{5}$

B  $\boxed{3} + 7 = 10$

D  $\boxed{8} + 7 = 15$

F  $\boxed{9} + 8 = 17$

$10 - 7 = \boxed{3}$

$15 - 7 = \boxed{8}$

$17 - 8 = \boxed{9}$

3. Write the missing numbers.

A To find  $14 - 5$ , it helps to think  $\boxed{9} + 5 = 14$ .

$14 - 5 = \boxed{9}$

B To find  $13 - 9$ , it helps to think  $\boxed{4} + 9 = 13$ .

$13 - 9 = \boxed{4}$

C To find  $15 - 8$ , it helps to think  $\boxed{7} + 8 = 15$ .

$15 - 8 = \boxed{7}$

4. Write the missing numbers.

A Since  $8 + 4 = 12$ , we know that  $12 - 4 = \boxed{8}$  and  $12 - 8 = \boxed{4}$ .

B Since  $31 + 13 = 44$ , we know that  $44 - 13 = \boxed{31}$  and  $44 - 31 = \boxed{13}$ .

C Since  $57 + 72 = 129$ , we know that  $129 - 57 = \boxed{72}$  and  $129 - 72 = \boxed{57}$ .

1. Make each equation true by writing 1, 2, 3, 4, 5, 6, 7, 8, or 9 in the boxes.  
Each equation should be different. *(Order of addends may vary.)*

**A**  $\boxed{9} + \boxed{4} = 13$

$\boxed{8} + \boxed{5} = 13$

$\boxed{7} + \boxed{6} = 13$

$\boxed{6} + \boxed{7} = 13$

$\boxed{5} + \boxed{8} = 13$

$\boxed{4} + \boxed{9} = 13$

**B**  $\boxed{\phantom{0}} + \boxed{5} = 14$

$\boxed{\phantom{0}} + \boxed{6} = 14$

$\boxed{\phantom{0}} + \boxed{7} = 14$

$\boxed{\phantom{0}} + \boxed{8} = 14$

$\boxed{\phantom{0}} + \boxed{9} = 14$

**C**  $\boxed{9} + \boxed{6} = 15$

$\boxed{8} + \boxed{7} = 15$

$\boxed{7} + \boxed{8} = 15$

$\boxed{6} + \boxed{9} = 15$

2. Study example **A**. For part **B** write four equations that have a difference of 9. Complete **C** and **D**.

**A**  $16 - 9 = 7$

$15 - 8 = 7$

$14 - 7 = 7$

$13 - 6 = 7$

$12 - 5 = 7$

**B**  $17 - 8 = 9$

$16 - 7 = 9$

$15 - 6 = 9$

$14 - 5 = 9$

$13 - 4 = 9$

**C**  $15 - 9 = 6$

$14 - 8 = 6$

$13 - 7 = 6$

$12 - 6 = 6$

$11 - 5 = 6$

**D**  $17 - 9 = 8$

$16 - 8 = 8$

$15 - 7 = 8$

$14 - 6 = 8$

$13 - 5 = 8$

3. Add. Part of exercise **A** is worked as an example. Complete it and then work exercises **B** and **C**.

**A**

10	13	11	14
9	4	5	9
15	9	6	15
14	13	11	10

**B**

13	10	15	12
14	6	8	14
11	4	7	11
12	10	15	13

**C**

11	11	11	16
12	5	7	11
15	9	6	13
16	14	13	11



Write an addition or subtraction equation for each problem.  
Then complete the sentence.

1. Julie bought a 5¢ stamp and a 4¢ stamp. How much did she spend?

$$\underline{5 + 4 = 9}$$

Julie spent 9 cents.

4. There are 11 players on a soccer team and 5 players on a basketball team. How many more players are on a soccer team?

$$\underline{11 - 5 = 6}$$

There are 6 more players on a soccer team than on a basketball team.

2. Ted had 10 marbles. He lost 4 of them. How many marbles were left?

$$\underline{10 - 4 = 6}$$

Ted had 6 marbles left.

5. Jill spent 9 cents for candy and 7 cents for gum. How much did she spend?

$$\underline{9 + 7 = 16}$$

Jill spent 16 cents in all.

3. Mr. Carr had 8 cows. He bought 7 more. How many cows did Mr. Carr have then?

$$\underline{8 + 7 = 15}$$

Mr. Carr had 15 cows in all.



6. Sam had 15 baseball cards. Tom had 6 cards. How many more cards did Sam have?

$$\underline{15 - 6 = 9}$$

Sam had 9 more cards than Tom.

Solve each short story problem.

1. 9 cats. 4 dogs.

How many animals? 13

4. 8 girls. 9 boys. How many children? 17

2. Had 5 cents. Candy costs 10 cents.

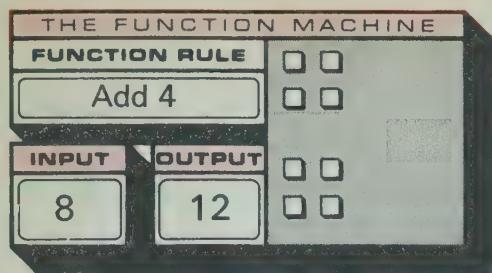
Need 5 more cents.

5. 6 horses. 14 boys. How many more boys than horses? 8

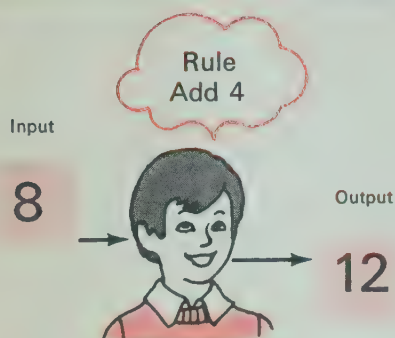
3. Had 7 hamsters. 6 more were born.

Had 13 hamsters in all.

6. 19 pennies. Lost 9. How many were left? 10



Study the pictures to see how the function machine works. A record of the operations of the function machine is shown below. Complete the record.



Function Rule	
Add 4	
Input	Output
8	12
3	7
10	14
7	11

Give the missing numbers or function rules.

1. Function Rule

Add 6	
Input	Output
A 3	9
B 5	11
C 7	13
D 9	15
E 8	14

2. Function Rule

Subtract 6	
Input	Output
A 9	3
B 11	5
C 13	7
D 15	9
E 14	8

3. Function Rule

Add 8	
Input	Output
A 5	13
B 7	15
C 3	11
D 6	14
E 9	17

4. Function Rule

Subtract 8	
Input	Output
A 13	5
B 15	7
C 11	3
D 14	6
E 17	9

5. Function Rule

Add 9	
Input	Output
A 6	15
B 10	19
C 8	17
D 7	16
E 5	14

6. Function Rule

Subtract 7	
Input	Output
A 13	6
B 17	10
C 12	5
D 14	7
E 15	8

7. Function Rule

Add 10	
Input	Output
A 6	16
B 3	13
C 24	34
B 58	68
C 9	19

8. Function Rule

Subtract 9	
Input	Output
A 10	1
B 12	3
C 18	9
B 17	8
C 16	7



1. Write two addition and two subtraction equations for this set.

$$\underline{6} + \underline{5} = \underline{11}$$

$$\underline{11} - \underline{6} = \underline{5}$$

$$\underline{5} + \underline{6} = \underline{11}$$

$$\underline{11} - \underline{5} = \underline{6}$$



A Write an addition equation for the colored jumps.  $\underline{9 + 6 = 15}$

B Write a subtraction equation for the black jumps.  $\underline{12 - 7 = 5}$

3. Find the sums.

A  $3 + 2 + 4 = \boxed{9}$

B  $5 + 2 + 3 = \boxed{10}$

C  $6 + 3 + 5 = \boxed{14}$

4. Find the sums and differences.

A  $\begin{array}{r} 6 \\ + 4 \\ \hline 10 \end{array}$

B  $\begin{array}{r} 6 \\ + 7 \\ \hline 13 \end{array}$

C  $\begin{array}{r} 7 \\ + 6 \\ \hline 13 \end{array}$

D  $\begin{array}{r} 9 \\ + 8 \\ \hline 17 \end{array}$

E  $\begin{array}{r} 8 \\ + 9 \\ \hline 17 \end{array}$

F  $\begin{array}{r} 9 \\ + 4 \\ \hline 13 \end{array}$

G  $\begin{array}{r} 7 \\ + 8 \\ \hline 15 \end{array}$

H  $\begin{array}{r} 5 \\ + 8 \\ \hline 13 \end{array}$

I  $\begin{array}{r} 9 \\ + 6 \\ \hline 15 \end{array}$

J  $\begin{array}{r} 10 \\ - 6 \\ \hline 4 \end{array}$

K  $\begin{array}{r} 13 \\ - 7 \\ \hline 6 \end{array}$

L  $\begin{array}{r} 13 \\ - 6 \\ \hline 7 \end{array}$

M  $\begin{array}{r} 17 \\ - 8 \\ \hline 9 \end{array}$

N  $\begin{array}{r} 17 \\ - 9 \\ \hline 8 \end{array}$

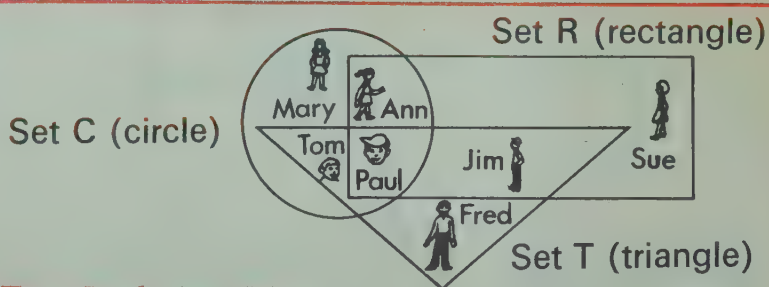
O  $\begin{array}{r} 15 \\ - 7 \\ \hline 8 \end{array}$

P  $\begin{array}{r} 13 \\ - 8 \\ \hline 5 \end{array}$

Q  $\begin{array}{r} 15 \\ - 6 \\ \hline 9 \end{array}$

R  $\begin{array}{r} 11 \\ - 7 \\ \hline 4 \end{array}$

## CHANGE OF PACE



1. Which children are in set C? Tom, Paul, Ann, Mary

2. Which children are in set R? Ann, Paul, Jim, Sue

3. Which children are in set T? Tom, Paul, Jim, Fred

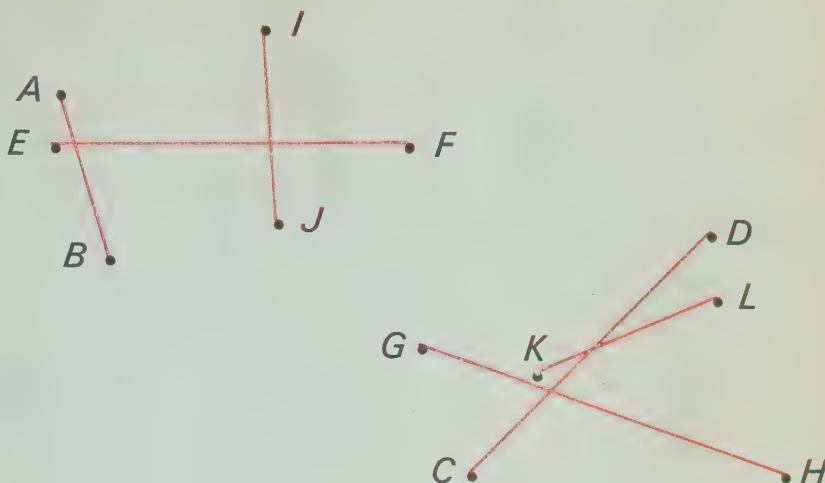
4. Which children are in both set C and set R? Ann, Paul

5. Which child is in all 3 sets? Paul

6. Which child is in set T but not in set C or set R? Fred

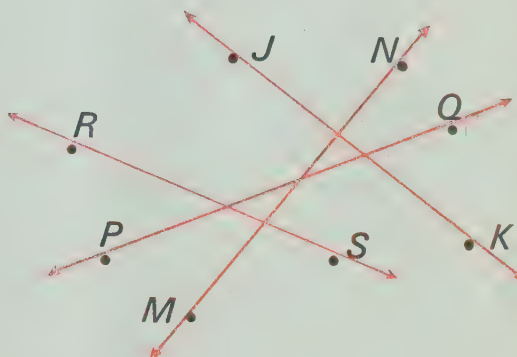
1. Use the points at the right to draw the segments named below. Part A is an example for you to follow.

- |                   |                   |
|-------------------|-------------------|
| A $\overline{AB}$ | D $\overline{GH}$ |
| B $\overline{CD}$ | E $\overline{IJ}$ |
| C $\overline{EF}$ | F $\overline{KL}$ |



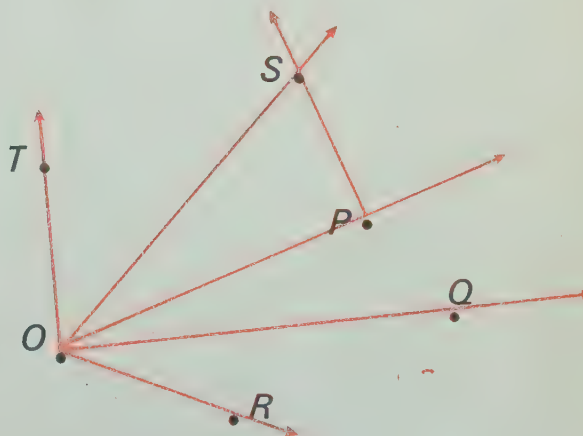
2. Use the points to the right to draw the lines named below. Part A has been completed.

- |                             |                             |
|-----------------------------|-----------------------------|
| A $\overleftrightarrow{RS}$ | C $\overleftrightarrow{MN}$ |
| B $\overleftrightarrow{PQ}$ | D $\overleftrightarrow{JK}$ |



3. Draw each of the rays named below. Part A has been completed.

- |                         |                         |
|-------------------------|-------------------------|
| A $\overrightarrow{OP}$ | D $\overrightarrow{OS}$ |
| B $\overrightarrow{OQ}$ | E $\overrightarrow{OT}$ |
| C $\overrightarrow{OR}$ | F $\overrightarrow{PS}$ |



4. Write the name (ray, line, or segment) for each figure shown below.



*line*

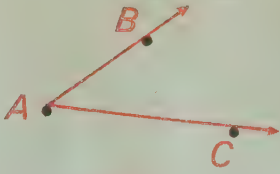
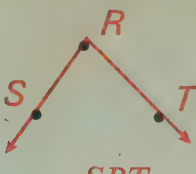


*ray*

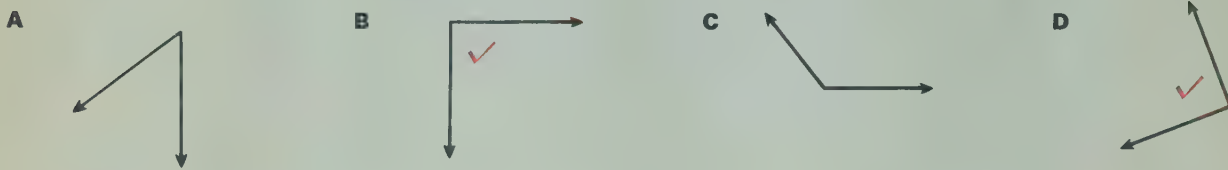


*segment*

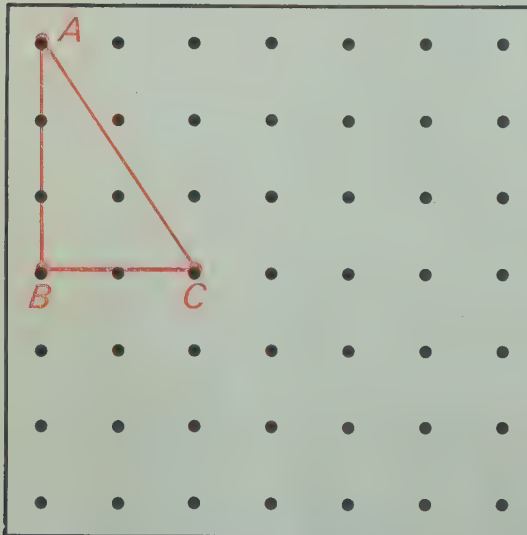


<p>1. A Draw <math>\overline{AB}</math>.          Draw <math>\overline{AC}</math>.          You have drawn <math>\angle ABC</math>.</p> 	<p>B Draw <math>\overline{RT}</math>.          Draw <math>\overline{RS}</math>.          You have drawn <math>\angle SRT</math>.</p> 
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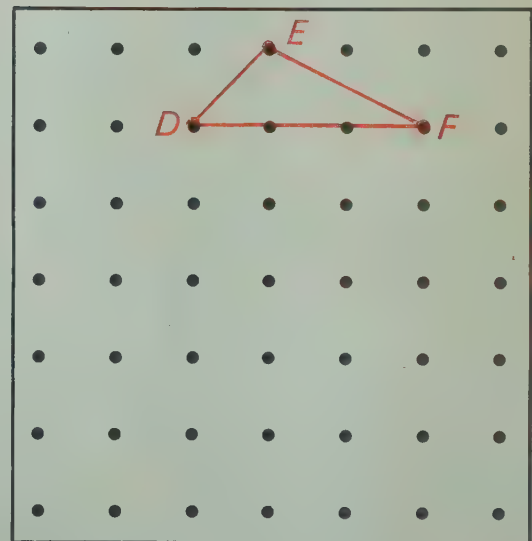
2. This is a **right angle**.  
 Place a  $\checkmark$  inside the angles below that are right angles.




3. A Triangle  $ABC$  is a **right triangle**.  
 It contains a right angle. Use the dot paper below and a ruler to draw a larger right triangle. *Answers will vary.*



B Triangle  $DEF$  contains no right angles. Use the dot paper below and a ruler to draw a triangle larger than  $\triangle DEF$  but having the same shape. *Answers will vary.*



4. A How many of these  are in the figure? 4

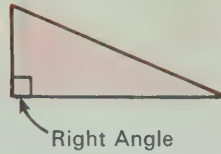


B How many triangles of **any size** are in this figure? 16



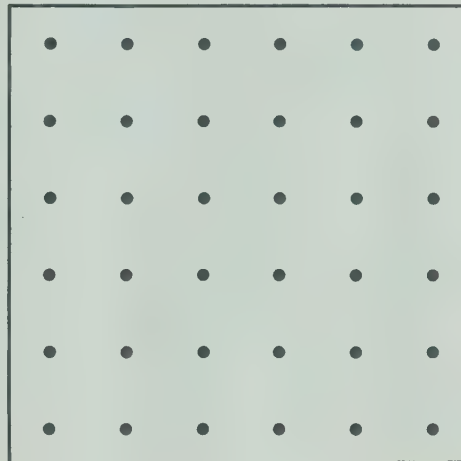
1. This is a right triangle.

Place a ✓ inside the triangles that are right triangles.



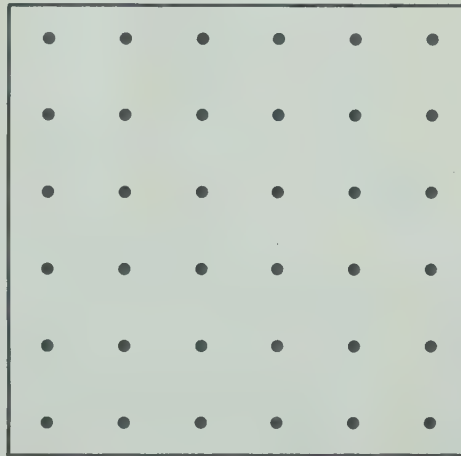
2. Draw a right triangle such that each side of the triangle is of a different length.

*Answers will vary.*



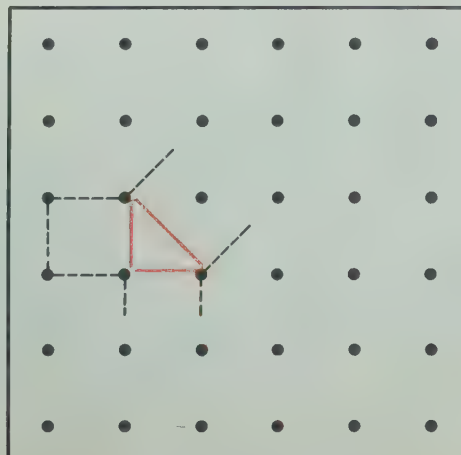
3. Draw a right triangle having two sides of the same length.

*Answers will vary.*



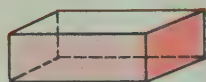
4. Finish drawing the squares on the leg and the hypotenuse of the colored triangle.

*Answers will vary.*





1.



A How many vertices (corners)

does the box have? 8

B How many flat surfaces? 6

2.



A How many flat surfaces

does the can have? 2

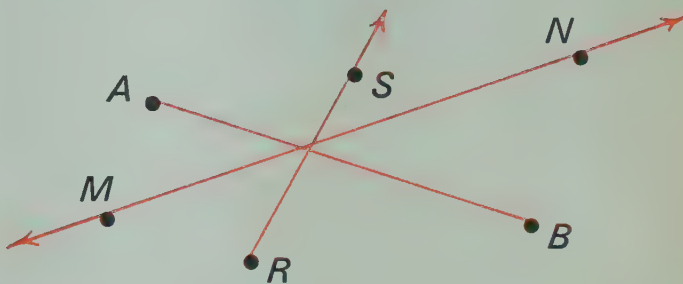
B How many curved surfaces? 1

3. Use the points at the right to draw the following figures:

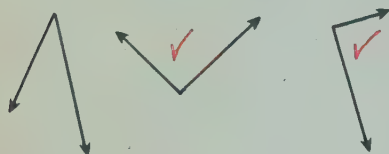
A  $\overline{AB}$

B  $\overrightarrow{MN}$

C  $\overleftrightarrow{RS}$



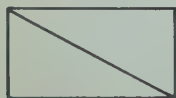
4. Place a  $\checkmark$  inside the angles that are right angles.



5. Place a  $\checkmark$  inside the triangles that are right triangles.



6. How many segments are shown in this figure? 5



7. How many triangles of any size are shown in this figure? 10



## CHANGE OF PACE

Each of the geometric figures below appears in the picture. Find and label the geometric figures in the picture.



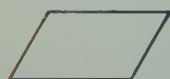
Circle



Triangle



Square

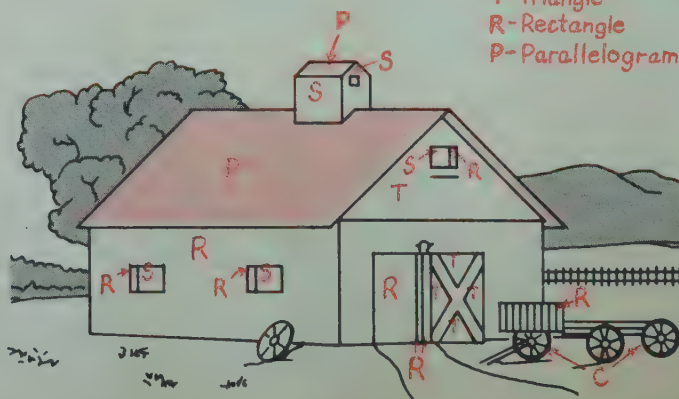


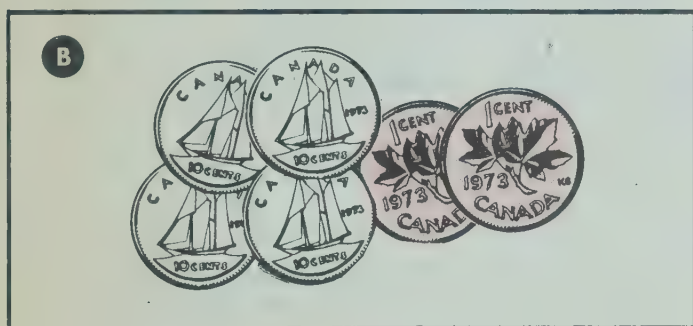
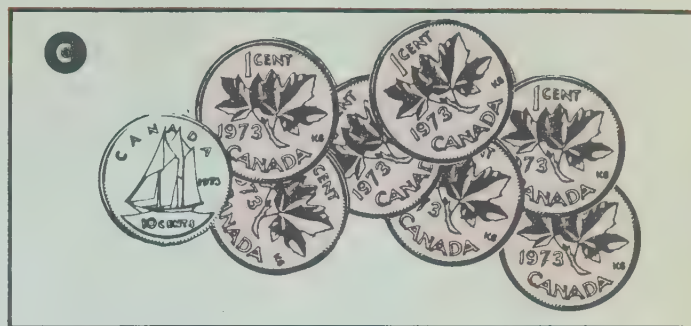
Parallelogram



Rectangle

C-Circle S-Square  
T-Triangle  
R-Rectangle  
P-Parallelogram





1. Give the value of each coin collection.

A A 35¢

B B 42¢

C C 17¢

D D 54¢

2. Give the total value of each pair of coin collections.

A A and B 77¢

C A and D 89¢

E B and C 59¢

B A and C 52¢

D C and D 71¢

F B and D 96¢

3. Ring the letter of the coin collection that has the greater value.

A A or B

B A or D

C B or C

D B or D

4. Ann had the amount in collection B. She spent 12¢. How much did she have left?

30¢

5. Tom had the amount in collection C. He spent 15¢. How much did he have left?

2¢

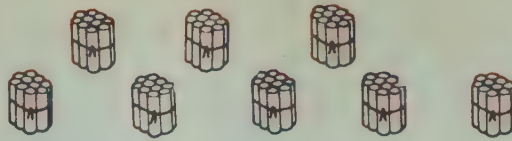
6. Bill had the amount in collection D. He lost 2 dimes and a penny. How much did he have left?

33¢



1.  $30 = \underline{3}$  tens

$50 = \underline{5}$  tens

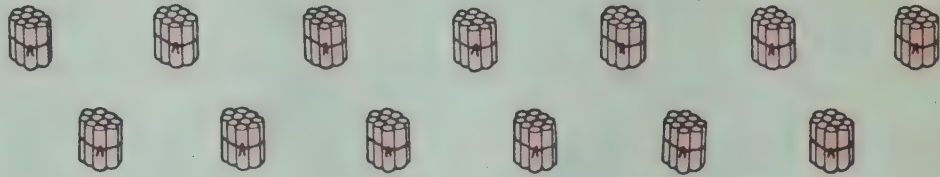


3 tens together with 5 tens make 8 tens.

Since  $3 + 5 = \underline{8}$ , we know that  $30 + 50 = \underline{80}$ .

2.  $70 = \underline{7}$  tens

$60 = \underline{6}$  tens



7 tens together with 6 tens make 13 tens.

Since  $7 + 6 = \underline{13}$ , we know that  $70 + 60 = \underline{130}$ .

3. Find the sums.

A Since  $1 + 8 = 9$ , we know that  $10 + 80 = \underline{90}$ .

B Since  $3 + 4 = \underline{7}$ , we know that  $30 + 40 = \underline{70}$ .

C Since  $4 + 9 = \underline{13}$ , we know that  $40 + 90 = \underline{130}$ .

D Since  $7 + 8 = \underline{15}$ , we know that  $70 + 80 = \underline{150}$ .

4. Find the sums.

A 
$$\begin{array}{r} 30 \\ + 20 \\ \hline 50 \end{array}$$

B 
$$\begin{array}{r} 20 \\ + 70 \\ \hline 90 \end{array}$$

C 
$$\begin{array}{r} 70 \\ + 30 \\ \hline 100 \end{array}$$

D 
$$\begin{array}{r} 90 \\ + 10 \\ \hline 100 \end{array}$$

E 
$$\begin{array}{r} 50 \\ + 70 \\ \hline 120 \end{array}$$

F 
$$\begin{array}{r} 40 \\ + 60 \\ \hline 100 \end{array}$$

G 
$$\begin{array}{r} 60 \\ + 80 \\ \hline 140 \end{array}$$

H 
$$\begin{array}{r} 80 \\ + 80 \\ \hline 160 \end{array}$$

5. Find the sums.

A 
$$\begin{array}{r} 4 \\ 3 \\ + 5 \\ \hline 12 \end{array} \quad \begin{array}{r} 40 \\ 30 \\ + 50 \\ \hline 120 \end{array}$$

B 
$$\begin{array}{r} 6 \\ 4 \\ + 7 \\ \hline 17 \end{array} \quad \begin{array}{r} 60 \\ 40 \\ + 70 \\ \hline 170 \end{array}$$

C 
$$\begin{array}{r} 8 \\ 2 \\ + 3 \\ \hline 13 \end{array} \quad \begin{array}{r} 80 \\ 20 \\ + 30 \\ \hline 130 \end{array}$$

D 
$$\begin{array}{r} 5 \\ 3 \\ + 7 \\ \hline 15 \end{array} \quad \begin{array}{r} 50 \\ 30 \\ + 70 \\ \hline 150 \end{array}$$

1. A How many tens in set A? 5

B How many tens in set B? 3

C How many tens in set A and set B together? 8

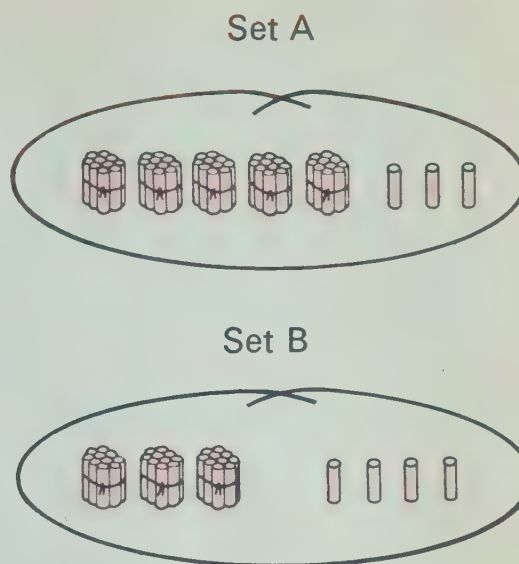
D How many extra sticks in set A? 3

E How many extra sticks in set B? 4

F How many extra sticks in set A and set B together? 7

G Together, in sets A and B, there are 8 tens and 7 extra sticks for a total of 87 sticks.

H Looking at the sets, we see that  $53 + 34 = \underline{87}$ .



2. Find the sums.

A

$\begin{array}{r} 40 \\ + 30 \\ \hline 70 \end{array}$	$\begin{array}{r} 7 \\ + 2 \\ \hline 9 \end{array}$	$\begin{array}{r} 47 \\ + 32 \\ \hline 79 \end{array}$
--	---	--

B

$\begin{array}{r} 50 \\ + 70 \\ \hline 120 \end{array}$	$\begin{array}{r} 3 \\ + 6 \\ \hline 9 \end{array}$	$\begin{array}{r} 53 \\ + 76 \\ \hline 129 \end{array}$
---	---	---

C

$\begin{array}{r} 60 \\ + 40 \\ \hline 100 \end{array}$	$\begin{array}{r} 5 \\ + 1 \\ \hline 6 \end{array}$	$\begin{array}{r} 65 \\ + 41 \\ \hline 106 \end{array}$
---	---	---

D

$\begin{array}{r} 80 \\ + 70 \\ \hline 150 \end{array}$	$\begin{array}{r} 5 \\ + 2 \\ \hline 7 \end{array}$	$\begin{array}{r} 85 \\ + 72 \\ \hline 157 \end{array}$
---	---	---

3. Find the sums.

A

$\begin{array}{r} 20 \\ + 40 \\ \hline 60 \end{array}$	$\begin{array}{r} 20 \\ + 40 \\ \hline 63 \end{array}$	$\begin{array}{r} 20 \\ + 5 \\ \hline 68 \end{array}$	$\begin{array}{r} 23 \\ + 5 \\ \hline 68 \end{array}$	$\begin{array}{r} 23 \\ + 45 \\ \hline 68 \end{array}$
--	--	---	---	--

B

$\begin{array}{r} 60 \\ + 30 \\ \hline 90 \end{array}$	$\begin{array}{r} 60 \\ + 2 \\ \hline 96 \end{array}$	$\begin{array}{r} 64 \\ + 2 \\ \hline 96 \end{array}$	$\begin{array}{r} 64 \\ + 32 \\ \hline 96 \end{array}$
--	---	---	--

C

$\begin{array}{r} 56 \\ + 23 \\ \hline 79 \end{array}$
--

D

$\begin{array}{r} 23 \\ + 65 \\ \hline 88 \end{array}$
--

E

$\begin{array}{r} 47 \\ + 31 \\ \hline 78 \end{array}$
--

F

$\begin{array}{r} 82 \\ + 17 \\ \hline 99 \end{array}$
--

G

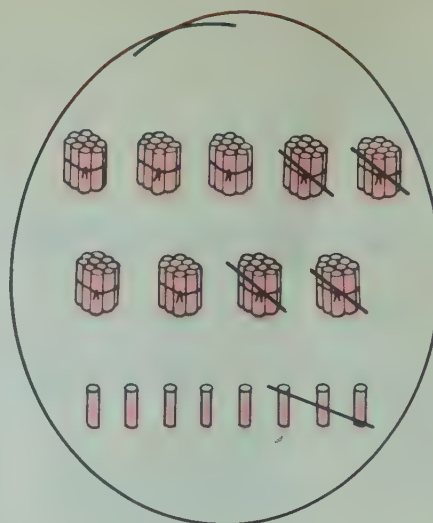
$\begin{array}{r} 61 \\ + 25 \\ \hline 86 \end{array}$
--

H

$\begin{array}{r} 438 \\ + 161 \\ \hline 599 \end{array}$
---



1. A How many tens in all? 9  
 B How many tens are crossed out? 4  
 C How many tens are left? 5  
 D How many extra sticks in all? 8  
 E How many extra sticks are crossed out? 3  
 F How many extra sticks are left? 5  
 G How many sticks in all? 98  
 H How many sticks are crossed out? 43  
 I How many sticks are left? 55  
 J Looking at the set, we see that  $98 - 43 = 55$ .



2. Find the differences.

A 
$$\begin{array}{r} 80 \\ - 30 \\ \hline 50 \end{array}$$
 
$$\begin{array}{r} 7 \\ - 3 \\ \hline 4 \end{array}$$
 
$$\begin{array}{r} 87 \\ - 33 \\ \hline 54 \end{array}$$

B 
$$\begin{array}{r} 60 \\ - 40 \\ \hline 20 \end{array}$$
 
$$\begin{array}{r} 9 \\ - 2 \\ \hline 7 \end{array}$$
 
$$\begin{array}{r} 69 \\ - 42 \\ \hline 27 \end{array}$$

C 
$$\begin{array}{r} 120 \\ - 50 \\ \hline 70 \end{array}$$
 
$$\begin{array}{r} 8 \\ - 2 \\ \hline 6 \end{array}$$
 
$$\begin{array}{r} 128 \\ - 52 \\ \hline 76 \end{array}$$

D 
$$\begin{array}{r} 250 \\ - 230 \\ \hline 20 \end{array}$$
 
$$\begin{array}{r} 7 \\ - 6 \\ \hline 1 \end{array}$$
 
$$\begin{array}{r} 257 \\ - 236 \\ \hline 21 \end{array}$$

3. Find the differences.

A 
$$\begin{array}{r} 90 \\ - 40 \\ \hline 50 \end{array}$$
 
$$\begin{array}{r} 97 \\ - 40 \\ \hline 57 \end{array}$$
 
$$\begin{array}{r} 97 \\ - 45 \\ \hline 52 \end{array}$$

B 
$$\begin{array}{r} 150 \\ - 80 \\ \hline 70 \end{array}$$
 
$$\begin{array}{r} 156 \\ - 80 \\ \hline 76 \end{array}$$
 
$$\begin{array}{r} 156 \\ - 84 \\ \hline 72 \end{array}$$

C 
$$\begin{array}{r} 87 \\ - 14 \\ \hline 73 \end{array}$$

D 
$$\begin{array}{r} 64 \\ - 21 \\ \hline 43 \end{array}$$

E 
$$\begin{array}{r} 96 \\ - 73 \\ \hline 23 \end{array}$$

F 
$$\begin{array}{r} 75 \\ - 45 \\ \hline 30 \end{array}$$

G 
$$\begin{array}{r} 48 \\ - 36 \\ \hline 12 \end{array}$$

H 
$$\begin{array}{r} 174 \\ - 80 \\ \hline 94 \end{array}$$

I 
$$\begin{array}{r} 174 \\ - 84 \\ \hline 90 \end{array}$$

J 
$$\begin{array}{r} 129 \\ - 34 \\ \hline 95 \end{array}$$

K 
$$\begin{array}{r} 138 \\ - 77 \\ \hline 61 \end{array}$$

L 
$$\begin{array}{r} 169 \\ - 96 \\ \hline 73 \end{array}$$

M 
$$\begin{array}{r} 148 \\ - 93 \\ \hline 55 \end{array}$$

N 
$$\begin{array}{r} 137 \\ - 45 \\ \hline 92 \end{array}$$

1. Put the correct mark ( $<$  or  $>$ ) in each .

A  $37 \text{ } \text{>} \text{ } 27$

F  $35 \text{ } \text{<} \text{ } 47$

K  $407 \text{ } \text{<} \text{ } 704$

P  $674 \text{ } \text{<} \text{ } 764$

B  $26 \text{ } \text{<} \text{ } 34$

G  $76 \text{ } \text{<} \text{ } 80$

L  $365 \text{ } \text{>} \text{ } 356$

Q  $20 \text{ } \text{>} \text{ } 19$

C  $10 \text{ } \text{<} \text{ } 100$

H  $89 \text{ } \text{<} \text{ } 90$

M  $87 \text{ } \text{>} \text{ } 78$

R  $856 \text{ } \text{<} \text{ } 865$

D  $99 \text{ } \text{<} \text{ } 100$

I  $41 \text{ } \text{>} \text{ } 14$

N  $100 \text{ } \text{>} \text{ } 89$

S  $90 \text{ } \text{>} \text{ } 89$

E  $58 \text{ } \text{<} \text{ } 85$

J  $30 \text{ } \text{<} \text{ } 200$

O  $99 \text{ } \text{<} \text{ } 101$

T  $644 \text{ } \text{>} \text{ } 466$

2. Put the correct mark ( $<$  or  $>$ ) in each .

A Since  $7 + 5 \text{ } \text{>} \text{ } 10$ ,  
we know that  $17 + 5 \text{ } \text{>} \text{ } 20$ .

E Since  $3 + 8 \text{ } \text{>} \text{ } 10$ ,  
we know that  $53 + 8 \text{ } \text{>} \text{ } 60$ .

B Since  $8 + 4 \text{ } \text{>} \text{ } 10$ ,  
we know that  $28 + 4 \text{ } \text{>} \text{ } 30$ .

F Since  $6 + 7 \text{ } \text{>} \text{ } 10$ ,  
we know that  $46 + 27 \text{ } \text{>} \text{ } 70$ .

C Since  $5 + 4 \text{ } \text{<} \text{ } 10$ ,  
we know that  $75 + 4 \text{ } \text{<} \text{ } 80$ .

G Since  $2 + 7 \text{ } \text{<} \text{ } 10$ ,  
we know that  $82 + 17 \text{ } \text{<} \text{ } 100$ .

D Since  $6 + 5 \text{ } \text{>} \text{ } 10$ ,  
we know that  $36 + 5 \text{ } \text{>} \text{ } 40$ .

H Since  $4 + 9 \text{ } \text{>} \text{ } 10$ ,  
we know that  $34 + 59 \text{ } \text{>} \text{ } 90$ .

3. Find the sums. Ring the smallest sum greater than 40.

A 
$$\begin{array}{r} 35 \\ + 3 \\ \hline 38 \end{array}$$

B 
$$\begin{array}{r} 35 \\ + 4 \\ \hline 39 \end{array}$$

C 
$$\begin{array}{r} 35 \\ + 5 \\ \hline 40 \end{array}$$

D 
$$\begin{array}{r} 35 \\ + 6 \\ \hline 41 \end{array}$$

E 
$$\begin{array}{r} 35 \\ + 7 \\ \hline 42 \end{array}$$

F 
$$\begin{array}{r} 35 \\ + 8 \\ \hline 43 \end{array}$$

G 
$$\begin{array}{r} 35 \\ + 9 \\ \hline 44 \end{array}$$

4. Find the sums. Ring the smallest sum greater than 70.

A 
$$\begin{array}{r} 67 \\ + 2 \\ \hline 69 \end{array}$$

B 
$$\begin{array}{r} 67 \\ + 3 \\ \hline 70 \end{array}$$

C 
$$\begin{array}{r} 67 \\ + 4 \\ \hline 71 \end{array}$$

D 
$$\begin{array}{r} 67 \\ + 5 \\ \hline 72 \end{array}$$

E 
$$\begin{array}{r} 67 \\ + 6 \\ \hline 73 \end{array}$$

F 
$$\begin{array}{r} 67 \\ + 7 \\ \hline 74 \end{array}$$

G 
$$\begin{array}{r} 67 \\ + 8 \\ \hline 75 \end{array}$$

5. Find the sums. Ring the smallest sum greater than 80.

A 
$$\begin{array}{r} 56 \\ + 3 \\ \hline 59 \end{array}$$

B 
$$\begin{array}{r} 56 \\ + 4 \\ \hline 60 \end{array}$$

C 
$$\begin{array}{r} 56 \\ + 5 \\ \hline 61 \end{array}$$

D 
$$\begin{array}{r} 56 \\ + 6 \\ \hline 62 \end{array}$$

E 
$$\begin{array}{r} 56 \\ + 7 \\ \hline 63 \end{array}$$

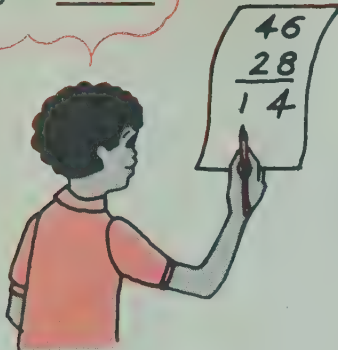
F 
$$\begin{array}{r} 56 \\ + 17 \\ \hline 73 \end{array}$$

G 
$$\begin{array}{r} 56 \\ + 27 \\ \hline 83 \end{array}$$

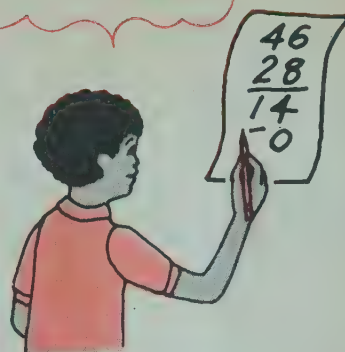


1. Solve each equation.

$$6 + 8 = \underline{14}$$



$$40 + 20 = \underline{60}$$



$$14 + 60 = \underline{74}$$



2. Solve the equation. Then write the correct number in the

A

$$5 + 9 = \underline{14}$$

$$\begin{array}{r} 35 \\ 59 \\ \hline \end{array}$$

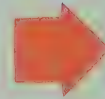
14



$$30 + 50 = \underline{80}$$

$$\begin{array}{r} 35 \\ 59 \\ 14 \\ \hline \end{array}$$

80



$$14 + 80 = \underline{94}$$

$$\begin{array}{r} 35 \\ 59 \\ 14 \\ 80 \\ \hline \end{array}$$

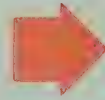
94

B

$$4 + 8 = \underline{12}$$

$$\begin{array}{r} 74 \\ 98 \\ \hline \end{array}$$

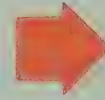
12



$$70 + 90 = \underline{160}$$

$$\begin{array}{r} 74 \\ 98 \\ 12 \\ \hline \end{array}$$

160



$$12 + 160 = \underline{172}$$

$$\begin{array}{r} 74 \\ 98 \\ 12 \\ 160 \\ \hline \end{array}$$

172

3. Find the sums.

A

$$\begin{array}{r} 54 \\ + 27 \\ \hline 11 \\ 70 \\ \hline 81 \end{array}$$

B

$$\begin{array}{r} 36 \\ + 45 \\ \hline 11 \\ 70 \\ \hline 81 \end{array}$$

C

$$\begin{array}{r} 78 \\ + 26 \\ \hline 14 \\ 90 \\ \hline 104 \end{array}$$

D

$$\begin{array}{r} 29 \\ + 54 \\ \hline 13 \\ 70 \\ \hline 83 \end{array}$$

E

$$\begin{array}{r} 63 \\ + 29 \\ \hline 12 \\ 80 \\ \hline 92 \end{array}$$

F

$$\begin{array}{r} 98 \\ + 53 \\ \hline 11 \\ 140 \\ \hline 151 \end{array}$$

G

$$\begin{array}{r} 74 \\ + 55 \\ \hline 9 \\ 120 \\ \hline 129 \end{array}$$

H

$$\begin{array}{r} 66 \\ + 47 \\ \hline 13 \\ 100 \\ \hline 113 \end{array}$$

I

$$\begin{array}{r} 58 \\ + 39 \\ \hline 17 \\ 80 \\ \hline 97 \end{array}$$

J

$$\begin{array}{r} 47 \\ + 75 \\ \hline 12 \\ 110 \\ \hline 122 \end{array}$$

K

$$\begin{array}{r} 37 \\ + 86 \\ \hline 13 \\ 110 \\ \hline 123 \end{array}$$

L

$$\begin{array}{r} 96 \\ + 66 \\ \hline 12 \\ 150 \\ \hline 162 \end{array}$$

## ● A Shortcut for Adding with Regrouping

1. Write the correct digit in each

A

$$6 + 8 = 14$$

$$\begin{array}{r} 1 \\ 46 \\ + 28 \\ \hline \end{array}$$

$$1 + 4 + 2 = 7$$

$$\begin{array}{r} 1 \\ 46 \\ + 28 \\ \hline \end{array}$$

B

$$8 + 3 = 11$$

$$\begin{array}{r} 1 \\ 58 \\ + 33 \\ \hline \end{array}$$

$$1 + 5 + 3 = 9$$

$$\begin{array}{r} 1 \\ 58 \\ + 33 \\ \hline \end{array}$$

C

$$9 + 3 = 12$$

$$\begin{array}{r} 1 \\ 59 \\ + 23 \\ \hline \end{array}$$

$$1 + 5 + 2 = 8$$

$$\begin{array}{r} 1 \\ 59 \\ + 23 \\ \hline \end{array}$$

D

$$9 + 5 = 14$$

$$\begin{array}{r} 1 \\ 69 \\ + 35 \\ \hline \end{array}$$

$$1 + 6 + 3 = 10$$

$$\begin{array}{r} 1 \\ 69 \\ + 35 \\ \hline \end{array}$$

E

$$7 + 8 = 15$$

$$\begin{array}{r} 1 \\ 397 \\ + 468 \\ \hline \end{array}$$

$$1 + 9 + 6 = 16$$

$$\begin{array}{r} 1 \\ 397 \\ + 468 \\ \hline \end{array}$$

$$1 + 3 + 4 = 8$$

$$\begin{array}{r} 1 \quad 1 \\ 397 \\ + 468 \\ \hline \end{array}$$

2. Find the sums.

A

$$\begin{array}{r} 53 \\ + 27 \\ \hline \end{array}$$

B

$$\begin{array}{r} 73 \\ + 19 \\ \hline \end{array}$$

C

$$\begin{array}{r} 64 \\ + 29 \\ \hline \end{array}$$

D

$$\begin{array}{r} 45 \\ + 47 \\ \hline \end{array}$$

E

$$\begin{array}{r} 75 \\ + 16 \\ \hline \end{array}$$

F

$$\begin{array}{r} 86 \\ + 9 \\ \hline \end{array}$$

G

$$\begin{array}{r} 37 \\ + 56 \\ \hline \end{array}$$

H

$$\begin{array}{r} 64 \\ + 37 \\ \hline \end{array}$$

I

$$\begin{array}{r} 52 \\ + 29 \\ \hline \end{array}$$

J

$$\begin{array}{r} 73 \\ + 45 \\ \hline \end{array}$$

K

$$\begin{array}{r} 85 \\ + 38 \\ \hline \end{array}$$

L

$$\begin{array}{r} 74 \\ + 69 \\ \hline \end{array}$$

M

$$\begin{array}{r} 436 \\ + 57 \\ \hline \end{array}$$

N

$$\begin{array}{r} 295 \\ + 45 \\ \hline \end{array}$$

O

$$\begin{array}{r} 187 \\ + 376 \\ \hline \end{array}$$

P

$$\begin{array}{r} 575 \\ + 139 \\ \hline \end{array}$$

Q

$$\begin{array}{r} 367 \\ + 527 \\ \hline \end{array}$$

R

$$\begin{array}{r} 889 \\ + 54 \\ \hline \end{array}$$

S

$$\begin{array}{r} 296 \\ + 475 \\ \hline \end{array}$$

T

$$\begin{array}{r} 389 \\ + 126 \\ \hline \end{array}$$

U

$$\begin{array}{r} 366 \\ + 644 \\ \hline \end{array}$$

V

$$\begin{array}{r} 878 \\ + 736 \\ \hline \end{array}$$

W

$$\begin{array}{r} 388 \\ + 412 \\ \hline \end{array}$$

X

$$\begin{array}{r} 305 \\ + 208 \\ \hline \end{array}$$



1. Tom spent 36¢. He lost 53¢. Now he has no money left. With how much money did he start?

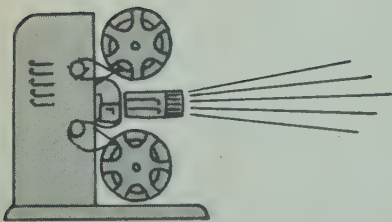
89¢

2. There are 25 children in Miss Black's class, 33 children in Mr. Judd's class, and 31 children in Mrs. King's class. How many children in all?

89 children

3. Roger has 97 hockey cards. Jim has 63 hockey cards. How many more cards does Roger have than Jim?

34 cards



4. It took 12 minutes to get ready for the movie. The movie lasted 37 minutes and the students talked about it for 15 minutes. How long did it take in all?

64 minutes

5. It is 100 kilometres to River City. It is only 52 kilometres to Lake City. How much farther is it to River City?

48 kilometres

6. Joe and Mike stepped on the scales. The scales read 87 kilograms. When Joe stepped off, the scales read 42 kilograms. How much does Joe weigh?

45 kilograms



7. Give the missing numbers.

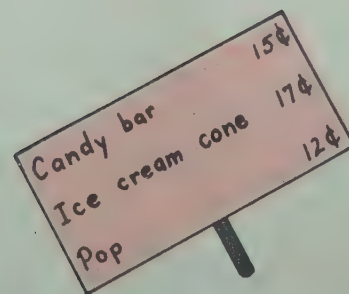
Function Rule

Double the number

Input	Output
25 cents	50 cents
117 days	234 days
A 36 centimetres	72 centimetres
B 60 minutes	120 minutes
C 66 kilometres	132 kilometres
D 258 metres	516 metres

8. Cindy had 24 shells in her collection. She found 34 more shells. How many does she have?









58 shells



9. Debbie bought a candy bar, an ice cream cone, and a bottle of pop. How much did she spend?

44¢

1. Study each picture carefully. Then write the correct numeral in each blank.

<b>A</b>	 	<u>3</u> tens and <u>4</u> <u>2</u> tens and <u>14</u> $34 = 20 + \underline{14}$
<b>B</b>	 	<u>5</u> tens and <u>2</u> <u>4</u> tens and <u>12</u> $52 = 40 + \underline{12}$
<b>C</b>	 	<u>1</u> tens and <u>9</u> <u>0</u> tens and <u>19</u> $\underline{19} = 10 + 9$
<b>D</b>	 	<u>6</u> tens and <u>0</u> <u>5</u> tens and <u>10</u> $60 = 50 + \underline{10}$

2. Give the missing numbers.

**A** 43 is 4 tens and 3.

43 is 3 tens and 13.

**B** 26 is 2 tens and 6.

26 is 1 tens and 16.

3. Solve the equation.

**A**  $75 = 60 + \underline{15}$

**C**  $82 = 70 + \underline{12}$

**E**  $63 = \underline{50} + 13$

**B**  $48 = \underline{30} + 18$

**D**  $37 = 20 + \underline{17}$

**F**  $99 = \underline{80} + 19$



## ● Regrouping to Find Differences

1. Give the missing addend in each .

A  $38 = 30 + \boxed{8}$

$38 = 20 + \boxed{18}$

C  $92 = 90 + \boxed{2}$

$92 = 80 + \boxed{12}$

E  $66 = 60 + \boxed{6}$

$66 = 50 + \boxed{16}$

B  $59 = 50 + \boxed{9}$

$59 = 40 + \boxed{19}$

D  $71 = 70 + \boxed{1}$

$71 = 60 + \boxed{11}$

F  $40 = 40 + \boxed{0}$

$40 = 30 + \boxed{10}$

2. Find the difference for each .

Problem	Think	Regroup and Subtract	Difference
<p>A</p> $\begin{array}{r} 76 \\ - 48 \\ \hline \end{array}$	<p><math>76 = 70 + 6</math></p> $\begin{array}{r} 70 \\ - 40 \\ \hline \end{array}$ $\begin{array}{r} 6 \\ - 8 \\ \hline ? \end{array}$	<p><math>76 = 60 + 16</math></p> $\begin{array}{r} 60 \\ - 40 \\ \hline 20 \end{array}$ $\begin{array}{r} 16 \\ - 8 \\ \hline 8 \end{array}$	$\begin{array}{r} 76 \\ - 48 \\ \hline 28 \end{array}$
<p>B</p> $\begin{array}{r} 54 \\ - 19 \\ \hline \end{array}$	<p><math>54 = 50 + 4</math></p> $\begin{array}{r} 50 \\ - 10 \\ \hline \end{array}$ $\begin{array}{r} 4 \\ - 9 \\ \hline ? \end{array}$	<p><math>54 = 40 + 14</math></p> $\begin{array}{r} 40 \\ - 10 \\ \hline 30 \end{array}$ $\begin{array}{r} 14 \\ - 9 \\ \hline 5 \end{array}$	$\begin{array}{r} 54 \\ - 19 \\ \hline 35 \end{array}$
<p>C</p> $\begin{array}{r} 92 \\ - 27 \\ \hline \end{array}$	<p><math>92 = 90 + 2</math></p> $\begin{array}{r} 90 \\ - 20 \\ \hline \end{array}$ $\begin{array}{r} 2 \\ - 7 \\ \hline ? \end{array}$	<p><math>92 = 80 + 12</math></p> $\begin{array}{r} 80 \\ - 20 \\ \hline 60 \end{array}$ $\begin{array}{r} 12 \\ - 7 \\ \hline 5 \end{array}$	$\begin{array}{r} 92 \\ - 27 \\ \hline 65 \end{array}$

## ● A Shortcut for Subtracting with Regrouping

1. Complete each exercise as in the example.

To think of **64** as **50** + **14**, we write  $\overset{5}{\cancel{6}} \overset{14}{4}$ .

A To think of **35** as **20** + **15**, we write  $\overset{2}{\cancel{3}} \overset{15}{5}$ .

B To think of **73** as **60** + **13**, we write  $\overset{6}{\cancel{7}} \overset{13}{3}$ .

C To think of **56** as **40** + **16**, we write  $\overset{4}{\cancel{5}} \overset{16}{6}$ .

2. Solve each equation. Then write the correct digit in each .

A

$$50 + 3 = 40 + \underline{13}$$

$$\begin{array}{r} \overset{4}{\cancel{5}} \overset{13}{3} \\ - 27 \\ \hline \end{array}$$

$$13 - 7 = \underline{6}$$

$$\begin{array}{r} \overset{4}{\cancel{5}} \overset{13}{3} \\ - 27 \\ \hline 6 \end{array}$$

$$40 - 20 = \underline{20}$$

$$\begin{array}{r} \overset{4}{\cancel{5}} \overset{13}{3} \\ - 27 \\ \hline 26 \end{array}$$

B

$$490 + 5 = 480 + \underline{15}$$

$$\begin{array}{r} \overset{8}{\cancel{4}} \overset{15}{9} \\ - 156 \\ \hline \end{array}$$

$$15 - 6 = \underline{9}$$

$$\begin{array}{r} \overset{8}{\cancel{4}} \overset{15}{9} \\ - 156 \\ \hline 9 \end{array}$$

$$80 - 50 = \underline{30}$$

$$\begin{array}{r} \overset{8}{\cancel{4}} \overset{15}{9} \\ - 156 \\ \hline 39 \end{array}$$

$$400 - 100 = \underline{300}$$

$$\begin{array}{r} \overset{8}{\cancel{4}} \overset{15}{9} \\ - 156 \\ \hline 339 \end{array}$$

3. Find the differences.

A  $\begin{array}{r} \overset{5}{\cancel{6}} \overset{12}{2} \\ - 27 \\ \hline 35 \end{array}$

B  $\begin{array}{r} \overset{6}{\cancel{7}} \overset{13}{3} \\ - 56 \\ \hline 17 \end{array}$

C  $\begin{array}{r} \overset{4}{\cancel{5}} \overset{14}{4} \\ - 16 \\ \hline 38 \end{array}$

D  $\begin{array}{r} 93 \\ - 28 \\ \hline 65 \end{array}$

E  $\begin{array}{r} 65 \\ - 46 \\ \hline 19 \end{array}$

F  $\begin{array}{r} 86 \\ - 28 \\ \hline 58 \end{array}$

G  $\begin{array}{r} 37 \\ - 19 \\ \hline 18 \end{array}$

H  $\begin{array}{r} 356 \\ - 27 \\ \hline 329 \end{array}$

I  $\begin{array}{r} 243 \\ - 16 \\ \hline 227 \end{array}$

J  $\begin{array}{r} 695 \\ - 32 \\ \hline 663 \end{array}$

K  $\begin{array}{r} 984 \\ - 445 \\ \hline 539 \end{array}$

L  $\begin{array}{r} 572 \\ - 327 \\ \hline 245 \end{array}$

M  $\begin{array}{r} 851 \\ - 734 \\ \hline 117 \end{array}$

N  $\begin{array}{r} 394 \\ - 358 \\ \hline 36 \end{array}$



1. Find the sums.

$$\begin{array}{r} \text{A} \quad 34 \\ + 25 \\ \hline 59 \end{array}$$

$$\begin{array}{r} \text{B} \quad 64 \\ + 17 \\ \hline 81 \end{array}$$

$$\begin{array}{r} \text{C} \quad 29 \\ + 44 \\ \hline 73 \end{array}$$

$$\begin{array}{r} \text{D} \quad 51 \\ 6 \\ + 2 \\ \hline 59 \end{array}$$

$$\begin{array}{r} \text{E} \quad 34 \\ 8 \\ + 7 \\ \hline 49 \end{array}$$

$$\begin{array}{r} \text{F} \quad 56 \\ 39 \\ + 8 \\ \hline 103 \end{array}$$

$$\begin{array}{r} \text{G} \quad 27 \\ 63 \\ + 42 \\ \hline 132 \end{array}$$

2. Find the differences.

$$\begin{array}{r} \text{A} \quad 39 \\ - 21 \\ \hline 18 \end{array}$$

$$\begin{array}{r} \text{B} \quad 94 \\ - 32 \\ \hline 62 \end{array}$$

$$\begin{array}{r} \text{C} \quad 87 \\ - 57 \\ \hline 30 \end{array}$$

$$\begin{array}{r} \text{D} \quad 77 \\ - 18 \\ \hline 59 \end{array}$$

$$\begin{array}{r} \text{E} \quad 68 \\ - 49 \\ \hline 19 \end{array}$$

$$\begin{array}{r} \text{F} \quad 123 \\ - 85 \\ \hline 38 \end{array}$$

$$\begin{array}{r} \text{G} \quad 483 \\ - 169 \\ \hline 314 \end{array}$$

Solve each story problem.

1. Fred weighs 32 kilograms.  
Jan weighs 33 kilograms.  
What is their total weight?

65 kilograms

4. Baked 24 cup cakes.  
Ate 17 of them.  
How many left?

7 cupcakes

2. The total weight of Alice and Linda is 122 kilograms. If Alice only weighs 58 kilograms, how much does Linda weigh?

64 kilograms



5. I took 32 minutes to show the first movie and 24 minutes to show the second movie.  
How much longer did it take to show the first movie?

8 minutes



3. A litre contains 8 glasses. 2 cups contains 1 glass.  
How many glasses in 1 litre and 2 cups?

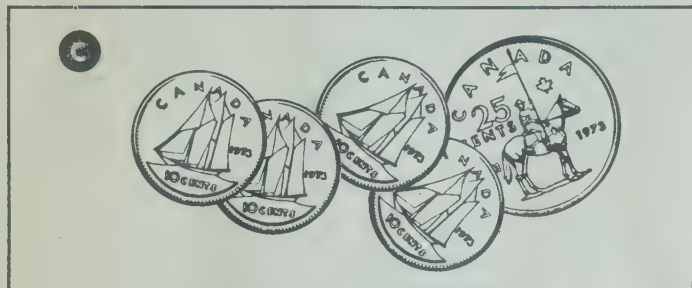


9 glasses

6. On Monday the noon temperature was 24°C degrees. On Tuesday it was 31°C.  
How much hotter was it on Tuesday?



7°C



1. Which collection has a value of 65¢? C
2. Which collection has a value less than 50¢? B
3. Give the value of collection A. \$1.00

4. Give the missing numbers.

- A \$8.25 means 8 dollars and 25 cents.  
 B \$3.15 means 3 dollars and 15 cents.  
 C \$5.75 means 5 dollars and 75 cents.  
 D \$6.98 means 6 dollars and 98 cents.  
 E \$.35 means 0 dollars and 35 cents.

5. Give the number of **cents** for each amount.

- A \$1 is 100 cents.  
 B \$2 is 200 cents.  
 C \$4 is 400 cents.  
 D \$7 is 700 cents.  
 E \$1.35 is 135 cents.  
 F \$4.63 is 463 cents.

6. Give the number of **dollars and cents** for each amount.

- A For 100 cents, we write \$1.00.  
 B For 254 cents, we write \$2.54.

7. Find the total amounts.

$$\begin{array}{r} \$6.22 \\ + 1.73 \\ \hline \$7.95 \end{array}$$

$$\begin{array}{r} \$3.61 \\ + .29 \\ \hline \$3.90 \end{array}$$

$$\begin{array}{r} \$7.07 \\ + 6.54 \\ \hline \$13.61 \end{array}$$

8. Find the difference in the amounts.

$$\begin{array}{r} \$8.89 \\ - 4.35 \\ \hline \$4.54 \end{array}$$

$$\begin{array}{r} \$10.62 \\ - 7.28 \\ \hline \$3.34 \end{array}$$

$$\begin{array}{r} \$15.75 \\ - 4.99 \\ \hline \$10.76 \end{array}$$



1. Find the sums and differences.

A 
$$\begin{array}{r} 50 \\ + 40 \\ \hline 90 \end{array}$$

B 
$$\begin{array}{r} 170 \\ - 80 \\ \hline 90 \end{array}$$

C 
$$\begin{array}{r} 79 \\ - 23 \\ \hline 56 \end{array}$$

D 
$$\begin{array}{r} 64 \\ + 23 \\ \hline 87 \end{array}$$

E 
$$\begin{array}{r} 87 \\ + 9 \\ \hline 96 \end{array}$$

F 
$$\begin{array}{r} 64 \\ + 8 \\ \hline 72 \end{array}$$

G 
$$\begin{array}{r} 73 \\ - 7 \\ \hline 66 \end{array}$$

H 
$$\begin{array}{r} 86 \\ - 9 \\ \hline 77 \end{array}$$

I 
$$\begin{array}{r} 27 \\ + 8 \\ \hline 35 \end{array}$$

J 
$$\begin{array}{r} 37 \\ + 96 \\ \hline 133 \end{array}$$

K 
$$\begin{array}{r} 45 \\ - 16 \\ \hline 29 \end{array}$$

L 
$$\begin{array}{r} 69 \\ + 54 \\ \hline 123 \end{array}$$

M 
$$\begin{array}{r} 86 \\ - 19 \\ \hline 67 \end{array}$$

N 
$$\begin{array}{r} 459 \\ + 37 \\ \hline 496 \end{array}$$

O 
$$\begin{array}{r} 47 \\ - 29 \\ \hline 18 \end{array}$$

P 
$$\begin{array}{r} 56 \\ + 84 \\ \hline 140 \end{array}$$

Q 
$$\begin{array}{r} 183 \\ - 47 \\ \hline 136 \end{array}$$

R 
$$\begin{array}{r} 562 \\ - 328 \\ \hline 234 \end{array}$$

2. Give the correct mark (< or >) for each

A 53 > 43

C 89 < 98

B 27 < 72

D 199 < 200

E  $57 + 63$  <  $57 + 64$

3. Judy's score is 91. Sandra's score is 69. How much greater is Judy's score? 22

4. Ted bought a game for 98¢ and a Yo-Yo for 65¢. What was the total cost? \$1.63

## CHANGE OF PACE

For each magic square below, find the sum of the 3 numbers along each arrow.

1.

10	5	6	21
3	7	11	21
8	9	4	21

21 21 21 21 21

2.

4	9	2	15
3	5	7	15
8	1	6	15

15 15 15 15 15

3.

5	9	10	24
13	8	3	24
6	7	11	24

24 24 24 24 24

4.

5	8	5	18
6	6	6	18
7	4	7	18

18 18 18 18 18

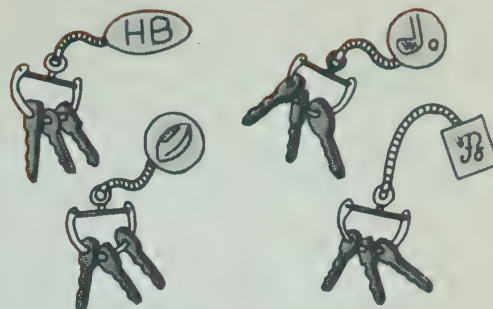
# 6

## Multiplication

### The Meaning of Multiplication

1. A There are 4 sets of keys.  
 B There are 3 keys in each set.  
 C There are 12 keys in all.  
 D To tell how many in 4 sets of 3, we write the multiplication equation

$$\underline{4 \times 3 = 12}$$



2. A There are 3 race cars.  
 B There are 4 wheels on each car.  
 C There are 12 wheels in all.  
 D To tell how many in 3 sets of 4, we write the multiplication equation  $3 \times 4 = 12$ .

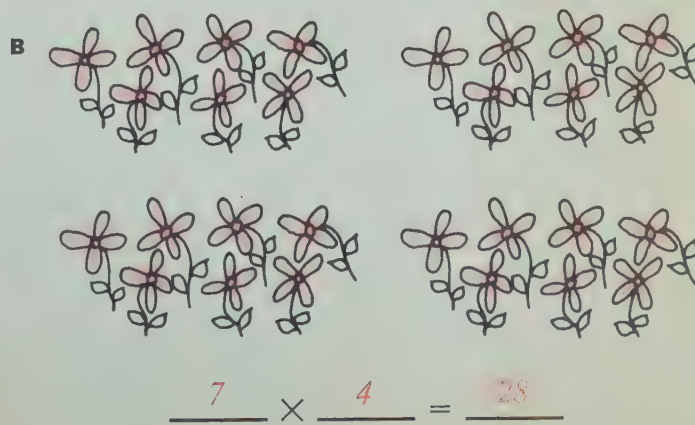
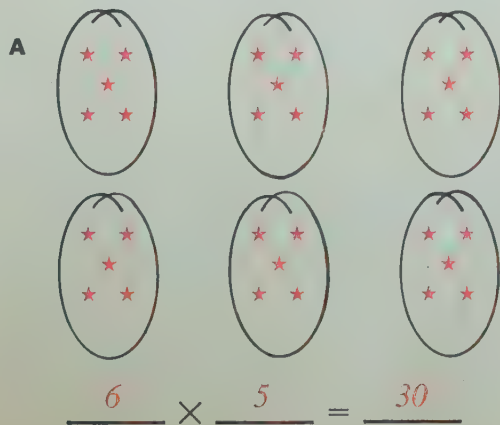


3. A There are 5 sets of four dots.  
 B There are 20 dots in all.  
 C  $5 \times 4 = \underline{20}$

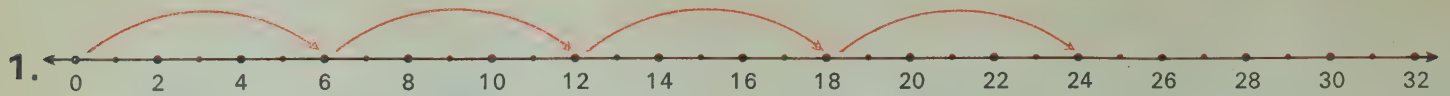


$$4 + 4 + 4 + 4 + 4 = \underline{20}$$

4. Write a multiplication equation for each set.



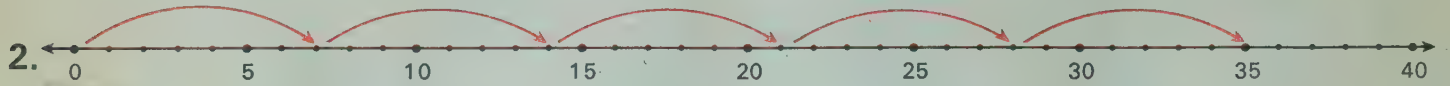




The picture above shows 4 jumps. Each jump is 6 units long.

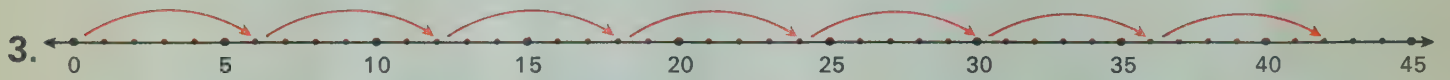
These jumps end at 24.

$$4 \times 6 = \boxed{24}$$



5 jumps, 7 units each, end at 35.

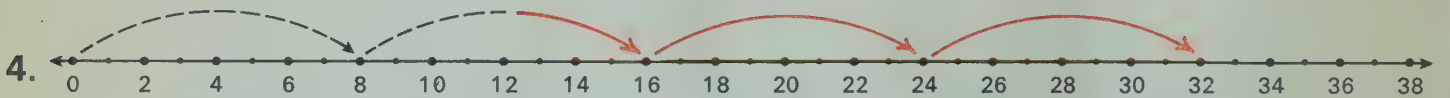
$$5 \times \underline{7} = \boxed{35}$$



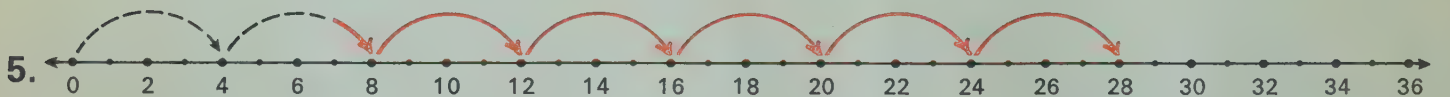
7 jumps, 6 units each, end at 42.

$$\underline{7} \times \underline{6} = \boxed{42}$$

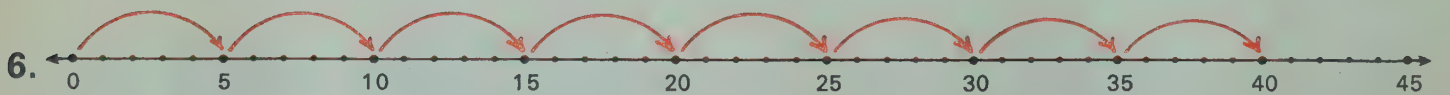
For Exercises 4 through 7, complete the number-line jumps and solve the equations.



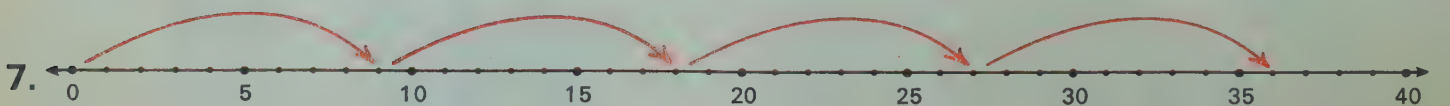
$$4 \times 8 = \boxed{32}$$



$$7 \times 4 = \boxed{28}$$



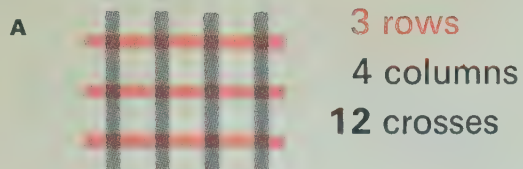
$$8 \times 5 = \boxed{40}$$



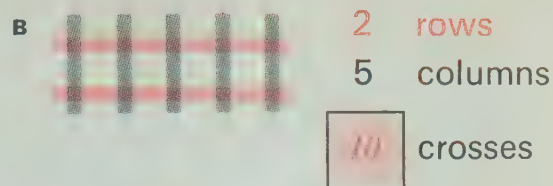
$$4 \times 9 = \boxed{36}$$

## ● Thinking About Multiplication in Several Ways

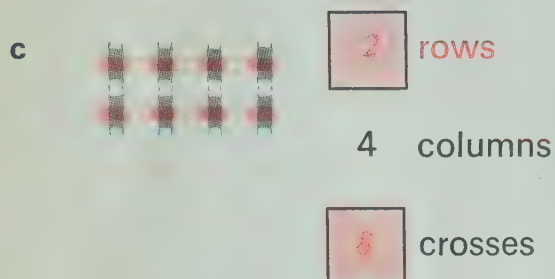
1. Give the missing numbers. Then solve the equation.



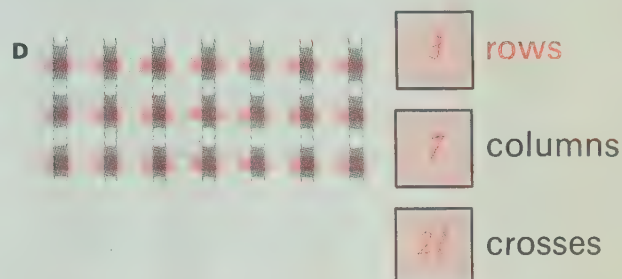
$$3 \times 4 = \boxed{12}$$



$$2 \times 5 = \boxed{10}$$

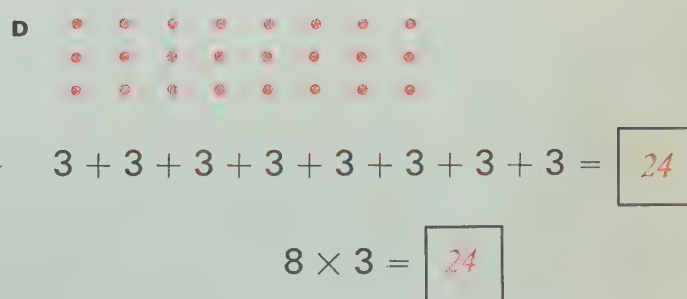
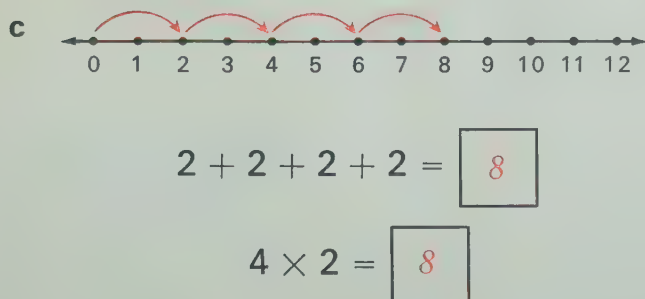
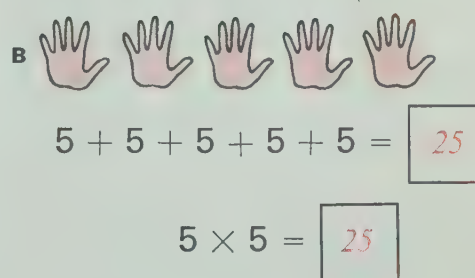
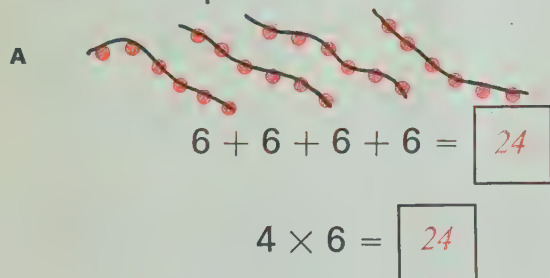


$$2 \times 4 = \boxed{8}$$

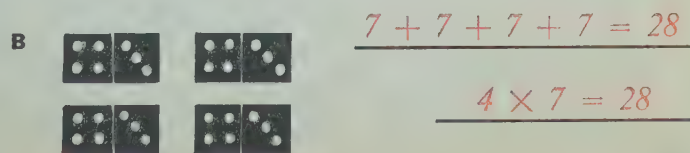


$$3 \times 7 = \boxed{21}$$

2. Solve the equations.



3. Write and solve one addition and one multiplication equation for each picture.





$$\begin{array}{r} 3 \\ \times 4 \\ \hline 12 \end{array}$$

The numbers we multiply are called **factors**.

The answer in multiplication is called the **product**.

$$3 \times 4 = 12$$

1. Write **F** or **P** in each blank to indicate if the numeral in red is a factor or a product.

A  $4 \times 2 = 8$  F

D  $8 \times 3 = 24$  P

B  $3 \times 6 = 18$  P

E  $4 \times 4 = 16$  F

C  $9 \times 3 = 27$  F

F  $6 \times 1 = 6$  P

2. Study each picture. Then solve each equation.



1 set of 4 stars

$$1 \times 4 = \boxed{4}$$



3 sets of zero dots

$$3 \times 0 = \boxed{0}$$



4 sets of 1 star

$$4 \times 1 = \boxed{4}$$

0 sets of 3 dots

$$0 \times 3 = \boxed{0}$$

The product of any number and 1 is the number itself.

The product of any number and 0 is 0.

3. Find the products.

A  $9 \times 0 = \underline{0}$

D  $1 \times 5 = \underline{5}$

G  $0 \times 6 = \underline{0}$

B  $1 \times 6 = \underline{6}$

E  $0 \times 4 = \underline{0}$

H  $23 \times 0 = \underline{0}$

C  $0 \times 4 = \underline{0}$

F  $84 \times 1 = \underline{84}$

I  $1 \times 23 = \underline{23}$

4. Solve the equations.

A  $13 \times \boxed{1} = 13$

C  $1 \times \boxed{55} = 55$

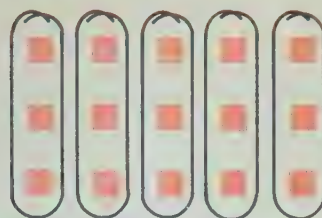
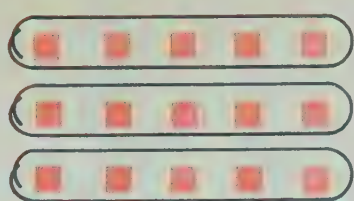
E  $18 \times \boxed{0} = 0$

B  $\boxed{0} \times 41 = 0$

D  $\boxed{1} \times 1 = 1$

F  $1 \times \boxed{0} = 0$

1.



Since  $3 \times 5 = \boxed{15}$ , we know that  $5 \times 3 = \boxed{15}$ .

When we change the **order** of the factors, we get the same product.

2. Find the products.

A  $3 \times 4 = \boxed{12}$

B  $4 \times 3 = \boxed{12}$

C Since  $7 \times 8 = 56$ ,  
we know  $8 \times 7 = \boxed{56}$ .

3. Match the two columns.

$8 \times 4$	$3 \times 16$
$82 \times 36$	$4 \times 8$
$16 \times 3$	$8 \times 57$
$57 \times 8$	$36 \times 82$

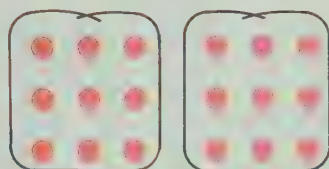
4. Solve the equations.

A  $3 \times 27 = 27 \times \boxed{3}$

B  $643 \times \boxed{9} = 9 \times 643$

C  $56 \times 28 = \boxed{28} \times 56$

5.



Since  $3 \times 3 \times 2 = \boxed{18}$ , we know that  $3 \times 3 \times 2 = \boxed{18}$ .

When we change the **grouping** of the factors, we get the same product.

6. Find the products.

A  $(3 \times 2) \times 5$   
 $6 \times 5 = \underline{30}$

B  $3 \times (2 \times 5)$   
 $3 \times 10 = \underline{30}$

C Since  $(2 \times 7) \times 6 = 84$ ,  
we know  $2 \times (7 \times 6) = \underline{84}$ .

7. Match the two columns.

$(1 \times 7) \times 2$	$(6 \times 3) \times 9$
$5 \times (8 \times 4)$	$1 \times (7 \times 2)$
$6 \times (3 \times 9)$	$6 \times (9 \times 8)$
$(6 \times 9) \times 8$	$(5 \times 8) \times 4$

8. Solve the equations.

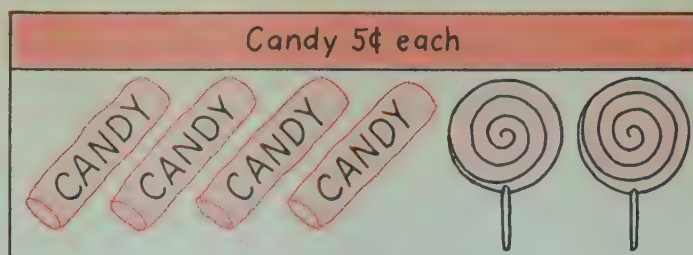
A  $(3 \times 8) \times 7 = 3 \times (8 \times \boxed{7})$

B  $(5 \times 9) \times 6 = \boxed{5} \times (9 \times 6)$

C  $4 \times (7 \times 3) = (4 \times 7) \times \boxed{3}$



## ● The Multiplication-Addition Principle



6 pieces of candy  
5¢ each

$$6 \times 5 = \boxed{30}$$

4 candy bars  
5¢ each

2 lollipops  
5¢ each

$$(4 \times 5) + (2 \times 5) = \boxed{30}$$

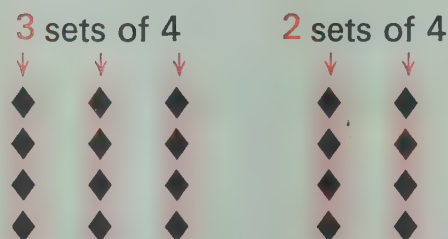
1. A Solve each equation above.

B Is it true that  $6 \times 5 = (4 \times 5) + (2 \times 5)$ ? Yes

2. Solve the equations. Answer the question.



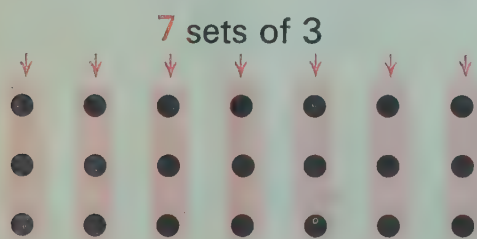
A  $5 \times 4 = \boxed{20}$



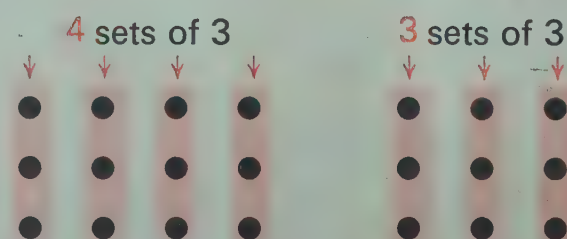
B  $(3 \times 4) + (2 \times 4) = \boxed{20}$

C Is it true that  $5 \times 4 = (3 \times 4) + (2 \times 4)$ ? Yes

3. Solve the equations. Answer the question.



A  $7 \times 3 = \boxed{21}$



B  $(4 \times 3) + (3 \times 3) = \boxed{21}$

C Is it true that  $7 \times 3 = (4 \times 3) + (3 \times 3)$ ? Yes

1. Give the missing number of twos.



For 6 sets of 2, we can think 5 twos and 1 two.



For 6 sets of 2, we can think 4 twos and 2 twos.



For 6 sets of 2, we can think 3 twos and 3 twos.

2. Give the missing number of **threes**.  $8 \times 3$

- A For **8 threes**, we can think **7 threes** and 1 three.  
 B For **8 threes**, we can think **6 threes** and 2 threes.  
 C For **8 threes**, we can think **5 threes** and 3 threes.  
 D For **8 threes**, we can think **4 threes** and 4 threes.

3. Give the missing number. Then solve the equation.

A 6 twos → 4 twos and 2 twos  

$$6 \times 2 = (4 \times 2) + (\boxed{2} \times 2)$$

B 5 threes → 3 threes and 2 threes  

$$5 \times 3 = (3 \times 3) + (\boxed{2} \times 3)$$

C 7 twos → 6 twos and 1 two  

$$7 \times 2 = (6 \times 2) + (\boxed{1} \times 2)$$

D 6 fours → 3 fours and 3 fours  

$$6 \times 4 = (3 \times 4) + (\boxed{3} \times 4)$$

E 5 sixes → 3 sixes and 2 sixes  

$$5 \times 6 = (3 \times 6) + (\boxed{2} \times 6)$$

F 9 threes → 5 threes and 4 threes  

$$9 \times 3 = (5 \times 3) + (\boxed{4} \times 3)$$



**"0" facts**

1. A Any number times **0** is 0.

B Fill in the **0** column.

C  $1 \times 0 = \boxed{0} \rightarrow 0 \times 1 = \boxed{0}$

D  $2 \times 0 = \boxed{0} \rightarrow 0 \times 2 = \boxed{0}$

E Use the products you wrote in the **0** column to help you fill in the **0** row.

**MULTIPLICATION TABLE**

	0 col ↓	1 col ↓	2 col ↓	3 col ↓						
×	0	1	2	3	4	5	6	7	8	9
0 row →	0	0	0	0	0	0	0	0	0	0
1 row →	1	0								
2 row →	2	0								
3 row →	3	0								
4	0									
5	0									
6	0									
7	0									
8	0									
9	0									

**"1" facts**

2. A Any number times 1 is itself.

B Fill in the **1** column.

C  $2 \times 1 = \boxed{2}$       D  $3 \times 1 = \boxed{3}$

E Use the products you wrote in the **1** column to help you fill in the **1** row.

**"2" facts**

3. A  $2 + 2 = \boxed{4} \rightarrow 2 \times 2 = \boxed{4}$

B  $3 + 3 = \boxed{6} \rightarrow 2 \times 3 = \boxed{6}$

C  $4 + 4 = \boxed{8} \rightarrow 2 \times 4 = \boxed{8}$

D  $5 + 5 = \boxed{10} \rightarrow 2 \times 5 = \boxed{10}$

E  $6 + 6 = \boxed{12} \rightarrow 2 \times 6 = \boxed{12}$

F  $7 + 7 = \boxed{14} \rightarrow 2 \times 7 = \boxed{14}$

G  $8 + 8 = \boxed{16} \rightarrow 2 \times 8 = \boxed{16}$

H  $9 + 9 = \boxed{18} \rightarrow 2 \times 9 = \boxed{18}$

**"3" facts**

5. A  $2 \times 3 = \boxed{6} \rightarrow 3 \times 3 = \boxed{9}$

B  $2 \times 4 = \boxed{8} \rightarrow 3 \times 4 = \boxed{12}$

C  $2 \times 5 = \boxed{10} \rightarrow 3 \times 5 = \boxed{15}$

D  $2 \times 6 = \boxed{12} \rightarrow 3 \times 6 = \boxed{18}$

E  $2 \times 7 = \boxed{14} \rightarrow 3 \times 7 = \boxed{21}$

F  $2 \times 8 = \boxed{16} \rightarrow 3 \times 8 = \boxed{24}$

G  $2 \times 9 = \boxed{18} \rightarrow 3 \times 9 = \boxed{27}$

4. Fill in the **2** column and the **2** row of the table.

6. Fill in the **3** column and the **3** row of the table.

**"4" facts**

1. A  $2 \times 4 = \boxed{8} \rightarrow 4 \times 4 = \boxed{16}$

B  $2 \times 5 = \boxed{10} \rightarrow 4 \times 5 = \boxed{20}$

C  $2 \times 6 = \boxed{12} \rightarrow 4 \times 6 = \boxed{24}$

D  $2 \times 7 = \boxed{14} \rightarrow 4 \times 7 = \boxed{28}$

E  $2 \times 8 = \boxed{16} \rightarrow 4 \times 8 = \boxed{32}$

F  $2 \times 9 = \boxed{18} \rightarrow 4 \times 9 = \boxed{36}$

2. Fill in the lighter colored portion of the **4 row** of the table at the right.

3. Use the products you wrote in the **4 row** to fill in the **4 column**.

**"5" facts**

4. Count by fives to fill in the gray boxes below. Then solve the equations.

**5**  $1 \times 5 = 5$  **30**  $6 \times 5 = \boxed{30}$

**10**  $2 \times 5 = 10$  **35**  $7 \times 5 = \boxed{35}$

**15**  $3 \times 5 = 15$  **40**  $8 \times 5 = \boxed{40}$

**20**  $4 \times 5 = 20$  **45**  $9 \times 5 = \boxed{45}$

**25**  $5 \times 5 = \boxed{25}$

5. Fill in the darker colored portion of the **5 row** and the **5 column**.

**MULTIPLICATION TABLE**

					4 col ↓	5 col ↓					
×	0	1	2	3	4	5	6	7	8	9	
0											
1											
2											
3											
4					16	20	24	28	32	36	
5					20						
6					24						
7					28						
8					32						
9					36						

6. The "1," "2," and "3" facts can also help you with the "4" and "5" facts. Solve the equations.

A  $5 \times 5 = (2 \times 5) + (\boxed{3} \times 5)$

B  $4 \times 8 = (\boxed{2} \times 8) + (2 \times 8)$

C  $5 \times 7 = (\boxed{1} \times 7) + (4 \times 7)$

D  $4 \times 9 = (1 \times 9) + (\boxed{3} \times 9)$

E  $5 \times 6 = (\boxed{2} \times 6) + (3 \times 6)$



## ● Completing the Multiplication Table

**MULTIPLICATION TABLE**

							6 col ↓	7 col ↓	8 col ↓	9 col ↓
×	0	1	2	3	4	5	6	7	8	9
0										
1										
2										
3										
4										
5										
6 row →							36	42	48	54
7 row →							42	49	56	63
8 row →							48	56	64	72
9 row →							54	63	72	81

### "6" facts

1. A  $3 \times 6 = \boxed{18} \rightarrow 6 \times 6 = \boxed{36}$
- B  $3 \times 7 = \boxed{21} \rightarrow 6 \times 7 = \boxed{42}$
- C  $3 \times 8 = \boxed{24} \rightarrow 6 \times 8 = \boxed{48}$
- D  $3 \times 9 = \boxed{27} \rightarrow 6 \times 9 = \boxed{54}$

2. Fill in the **6 row** and the **6 column** of the table.

### "7" facts

3. A  $6 \times 7 = \boxed{42} \rightarrow 7 \times 7 = \boxed{49}$
- B  $6 \times 8 = \boxed{48} \rightarrow 7 \times 8 = \boxed{56}$

C  $6 \times 9 = \boxed{54} \rightarrow 7 \times 9 = \boxed{63}$

- D Fill in the rest of the **7 row** and **column** of the table.

### "8" facts

4. A  $4 \times 8 = \boxed{32} \rightarrow 8 \times 8 = \boxed{64}$

B  $4 \times 9 = \boxed{36} \rightarrow 8 \times 9 = \boxed{72}$

Fill in the rest of the **8 row** and **column** in the table.

### "9" facts

5. A  $8 \times 9 = \boxed{72} \rightarrow 9 \times 9 = \boxed{81}$

- B Complete the table.

6. Find the products.

A 
$$\begin{array}{r} 6 \\ \times 6 \\ \hline 36 \end{array}$$

B 
$$\begin{array}{r} 8 \\ \times 4 \\ \hline 32 \end{array}$$

C 
$$\begin{array}{r} 9 \\ \times 5 \\ \hline 45 \end{array}$$

D 
$$\begin{array}{r} 7 \\ \times 7 \\ \hline 49 \end{array}$$

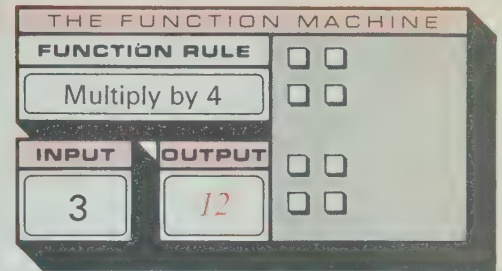
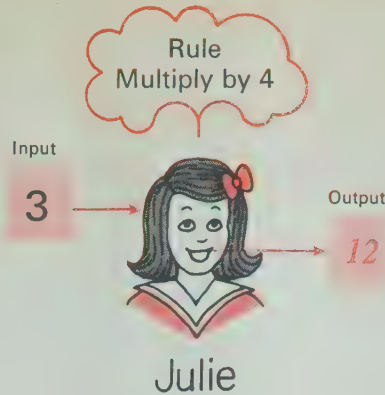
E 
$$\begin{array}{r} 7 \\ \times 9 \\ \hline 63 \end{array}$$

F 
$$\begin{array}{r} 6 \\ \times 8 \\ \hline 48 \end{array}$$

G 
$$\begin{array}{r} 9 \\ \times 9 \\ \hline 81 \end{array}$$

1. What output number should Julie give?

2. Write the correct output number on the function machine.



For exercises 3 through 10, give the missing numbers or function rules.

3. Function Rule

Multiply by 4

Input Output

	3	12
A	5	20
B	9	36
C	8	32
D	6	24
E	4	16

4. Function Rule

Multiply by 5

Input Output

	1	5
A	3	15
B	4	20
C	9	45
D	7	35
E	5	25

5. Function Rule

Multiply by 6

Input Output

A	0	0
B	5	30
C	3	18
D	9	54
E	4	24
F	7	42

6. Function Rule

Multiply by 7

Input Output

A	2	14
B	5	35
C	3	21
D	8	56
E	4	28
F	7	49

7. Function Rule

Multiply by 8

Input Output

	3	24
A	4	32
B	7	56
C	2	16
D	5	40
E	8	64

8. Function Rule

Multiply by 9

Input Output

	1	9
A	2	18
B	3	27
C	4	36
D	5	45
E	6	54

9. Function Rule

Multiply by 0

Input Output

A	9	0
B	3	0
C	0	0
D	4	0
E	5	0
F	7	0

10. Function Rule

Multiply by 3

Input Output

A	1	3
	2	6
	3	9
B	7	21
C	8	24
D	9	27



Fill in each   with a multiplication fact and each blank or box with a sum, difference, or product.

1.  $1 \times 2$   $2 \times 2$   $3 \times 2$   $4 \times 2$   $5 \times 2$   $6 \times 2$   $7 \times 2$   $8 \times 2$   $9 \times 2$

↓   ↓   ↓   ↓   ↓   ↓   ↓   ↓   ↓

2   4   6   8   10   12   14   16   18

2.  $1 \times 5$   $2 \times 5$   $3 \times 5$   $4 \times 5$   $5 \times 5$   $6 \times 5$   $7 \times 5$   $8 \times 5$   $9 \times 5$

↓   ↓   ↓   ↓   ↓   ↓   ↓   ↓   ↓

5   10   15   20   25   30   35   40   45

3.  $1 \times 9$   $2 \times 9$   $3 \times 9$   $4 \times 9$   $5 \times 9$   $6 \times 9$   $7 \times 9$   $8 \times 9$   $9 \times 9$

↓   ↓   ↓   ↓   ↓   ↓   ↓   ↓   ↓

9   18   27   36   45   54   63   72   81

↓   ↓   ↓   ↓   ↓   ↓   ↓   ↓   ↓

$\begin{array}{r} 0 \\ + 9 \\ \hline 9 \end{array}$	$\begin{array}{r} 1 \\ + 8 \\ \hline 9 \end{array}$	$\begin{array}{r} 2 \\ + 7 \\ \hline 9 \end{array}$	$\begin{array}{r} 3 \\ + 6 \\ \hline 9 \end{array}$	$\begin{array}{r} 4 \\ + 5 \\ \hline 9 \end{array}$	$\begin{array}{r} 5 \\ + 4 \\ \hline 9 \end{array}$	$\begin{array}{r} 6 \\ + 3 \\ \hline 9 \end{array}$	$\begin{array}{r} 7 \\ + 2 \\ \hline 9 \end{array}$	$\begin{array}{r} 8 \\ + 1 \\ \hline 9 \end{array}$
---	---	---	---	---	---	---	---	---

4.  $1 \times 1$   $2 \times 2$   $3 \times 3$   $4 \times 4$   $5 \times 5$   $6 \times 6$   $7 \times 7$   $8 \times 8$   $9 \times 9$

↓   ↓   ↓   ↓   ↓   ↓   ↓   ↓   ↓

1   4   9   16   25   36   49   64   81

↘   ↘   ↘   ↘   ↘   ↘   ↘   ↘   ↘

3   5   7   9   11   13   15   17

5. Complete the table.

×	1	2	3	4	5	6	7	8	9
0	0	0	0	0	0	0	0	0	0
3	3	6	9	12	15	18	21	24	27
10	10	20	30	40	50	60	70	80	90

1. Find the products.

A  $\begin{array}{r} 7 \\ \times 0 \\ \hline 0 \end{array}$

B  $\begin{array}{r} 9 \\ \times 5 \\ \hline 45 \end{array}$

C  $\begin{array}{r} 6 \\ \times 1 \\ \hline 6 \end{array}$

D  $\begin{array}{r} 5 \\ \times 7 \\ \hline 35 \end{array}$

E  $\begin{array}{r} 1 \\ \times 4 \\ \hline 4 \end{array}$

F  $\begin{array}{r} 2 \\ \times 7 \\ \hline 14 \end{array}$

G  $\begin{array}{r} 7 \\ \times 8 \\ \hline 56 \end{array}$

H  $\begin{array}{r} 5 \\ \times 2 \\ \hline 10 \end{array}$

I  $\begin{array}{r} 4 \\ \times 7 \\ \hline 28 \end{array}$

J  $\begin{array}{r} 9 \\ \times 7 \\ \hline 63 \end{array}$

K  $\begin{array}{r} 3 \\ \times 6 \\ \hline 18 \end{array}$

L  $\begin{array}{r} 8 \\ \times 9 \\ \hline 72 \end{array}$

M  $\begin{array}{r} 8 \\ \times 8 \\ \hline 64 \end{array}$

N  $\begin{array}{r} 9 \\ \times 6 \\ \hline 54 \end{array}$

2. Find the products.

A  $8 \times 2 = \boxed{16}$

E  $3 \times 5 = \boxed{15}$

I  $5 \times 6 = \boxed{30}$

M  $6 \times 6 = \boxed{36}$

B  $5 \times 0 = \boxed{0}$

F  $8 \times 7 = \boxed{56}$

J  $7 \times 7 = \boxed{49}$

N  $3 \times 9 = \boxed{27}$

C  $8 \times 5 = \boxed{40}$

G  $9 \times 4 = \boxed{36}$

K  $2 \times 9 = \boxed{18}$

O  $6 \times 7 = \boxed{42}$

D  $9 \times 1 = \boxed{9}$

H  $5 \times 8 = \boxed{40}$

L  $7 \times 6 = \boxed{42}$

P  $7 \times 5 = \boxed{35}$

3. Multiply.

A

15	6	40	16
24	3	8	24
10	2	5	10
16	6	40	15

B

12	0	15	0
20	4	5	20
0	0	3	0
0	0	15	12

C

54	48	63	56
42	6	7	42
72	8	9	72
56	48	63	54

4. Give the missing numbers in the function tables.

Function Rule

Multiply by 7;  
then subtract 7

Input Output

A

2	7
4	21
5	28
3	14
10	63

Function Rule

Multiply by 8;  
then add 5

Input Output

F

2	21
4	37
7	61
6	53
9	77

5. Solve the equations.

A  $7 \times n = 42$   $n = \underline{6}$

B  $n \times 8 = 64$   $n = \underline{8}$

C  $3 \times 9 = n$   $n = \underline{27}$

D  $n \times 6 = 54$   $n = \underline{9}$

E  $7 \times n = 63$   $n = \underline{9}$

F  $n \times 9 = 72$   $n = \underline{8}$

G  $7 \times 8 = n$   $n = \underline{56}$



1. Sally ate in a restaurant which had this menu. She chose **roast beef** and **corn**. Tim chose lamb chops and peas.

A What would you choose?

Answers will vary. and \_\_\_\_\_

B There are 6 different dinners you can choose. List them all.

1. Roast Beef and Peas

2. Roast Beef and Corn

3. Lamb Chops and Peas

4. Lamb Chops and Corn

5. Fried Chicken and Peas

6. Fried Chicken and Corn

C How many kinds of meat are there? 3

D How many vegetables? 2

E How many different dinners are there? 6

F Solve the equation:  $3 \times 2 =$  6

MENU

Dinner Special . . . \$2.75

Choice of one:

Roast Beef	Lamb Chops	Fried Chicken
---------------	---------------	------------------

Choice of one:

Peas	Corn
------	------

2. A Draw lines to match square 1 with circles A, B, and C.

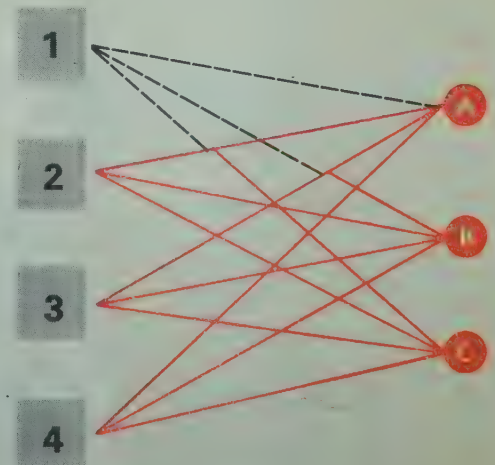
B Draw lines to match each square with circles A, B, and C.

C There are 4 squares.

D There are 3 circles.

E 3 matching lines are drawn from each square.

F There are 12 matching lines in all. We write,  $4 \times$  3 = 12.



Write a multiplication equation for each problem.  
Then fill the blank in the sentence.

1. Tom bought six 8-cent stamps. How much did he pay for the stamps?

$$6 \times 8 = 48$$

Tom spent 48 cents.

2. How many pennies would it take to buy as much as 9 nickels?

$$9 \times 5 = 45$$

9 nickels are worth 45 cents.

3. Each team has 9 players. There are 4 teams. How many players are there?

$$9 \times 4 = 36$$

There are 36 players in all.



4. Nan took swimming lessons 4 days a week for 6 weeks. How many days did Nan take lessons?

$$4 \times 6 = 24$$

Nan took swimming lessons for 24 days.

5. There were 8 hot-dog buns in each package. Mrs. Cook bought 7 packages. How many buns did she buy?

$$8 \times 7 = 56$$

Mrs. Cook bought 56 buns.

6. There are 6 rows of desks with 5 desks in each row. If one child sits in each desk, how many children are in the class?

$$6 \times 5 = 30$$

There are 30 children in the class.

Fill the blanks in each short story.

1. 7 cartons. 6 bottles in each carton. 42 bottles.

2. 6 children at each table.

4 tables. 24 children.



3. 9 boxes of cupcakes. 4 cupcakes in each box. 36 cupcakes in all.



4. Nine 4-cent stamps. Total cost is 36 cents.

5. 1 newspaper costs 7 cents. 7 papers cost 49 cents.

6. 8 nails for each horseshoe. 4 horseshoes for the horse.

32 nails in all.

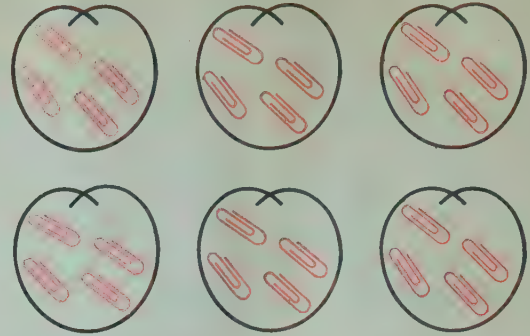
7. 8 books in each box. 7 boxes were delivered.

56 books in all.

8. One spider, 8 legs. 5 spiders, 40 legs.



1. A There are 6 sets of paper clips.  
 B There are 4 paper clips in each set.  
 C There are 24 paper clips in all.  
 D To tell how many in 6 sets of 4, we write the multiplication equation  
 $6 \times 4 = 24$ .



2. Solve the equations.

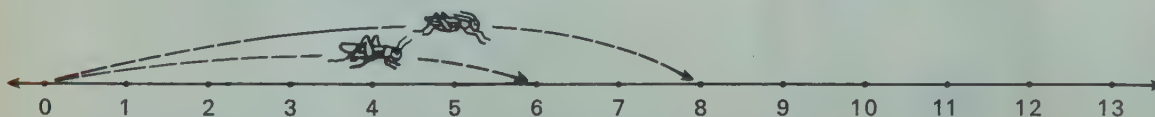
- A Since  $8 \times 9 = 72$ , then  $9 \times 8 = \underline{72}$ .  
 B Since  $6 \times 8 = \underline{48}$ , then  $8 \times 6 = \underline{48}$ .  
 C  $(2 \times 8) \times 4 = 2 \times (8 \times \underline{4})$       E  $(4 \times 6) + (\underline{3} \times 6) = 7 \times 6$   
 D  $(3 \times 8) + (4 \times 8) = \underline{7} \times 8$       F  $(\underline{0} \times 7) + (3 \times 7) = 3 \times 7$

3. Find the products.

- A  $8 \times 4 = \underline{32}$       E  $6 \times 9 = \underline{54}$       I  $6 \times 7 = \underline{42}$   
 B  $9 \times 3 = \underline{27}$       F  $8 \times 0 = \underline{0}$       J  $8 \times 8 = \underline{64}$   
 C  $6 \times 5 = \underline{30}$       G  $7 \times 9 = \underline{63}$       K  $5 \times 9 = \underline{45}$   
 D  $7 \times 1 = \underline{7}$       H  $5 \times 8 = \underline{40}$       L  $9 \times 9 = \underline{81}$

## CHANGE OF PACE

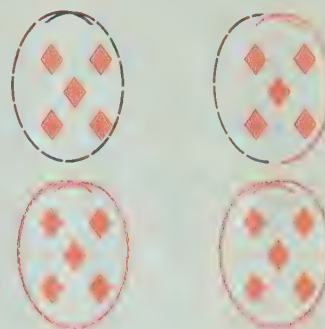
A grasshopper and a cricket are jumping along a number line. The grasshopper jumps 8 units each time. The cricket jumps 6 units each time.



1. The cricket starts at 0 and makes 8 jumps. He lands at 48.  
 2. The grasshopper starts at 0 and makes 6 jumps. He lands at 48.  
 3. The grasshopper makes 5 jumps. The cricket makes 5 jumps. If they started at 0, how far apart are they? 10 units.

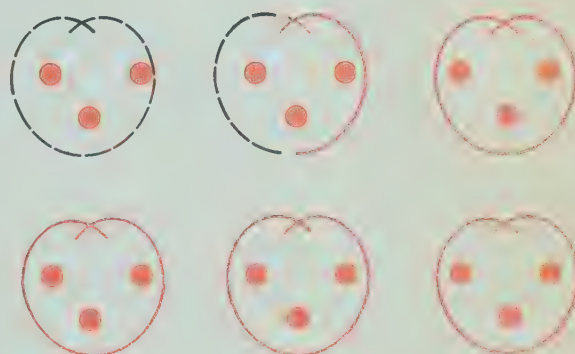
1. Ring as many sets of 5 as you can.

- A There are 20 figures in all.
- B There are 4 sets of 5.
- C There are 4 sets of 5 in a set of 20.
- D There are 4 fives in 20.
- E Solve the equation.  $20 \div 5 = \underline{4}$



2. Ring as many sets of 3 as you can.

- A There are 18 figures in all.
- B There are 6 sets of 3.
- C There are 6 sets of 3 in a set of 18.
- D Solve the equation.  $18 \div 3 = \underline{6}$



3. Ring as many sets of 4 as you can.

- A There are 20 figures in all.
- B There are 5 sets of 4.
- C There are 5 fours in 20.
- D Solve the equation.  $20 \div 4 = \underline{5}$

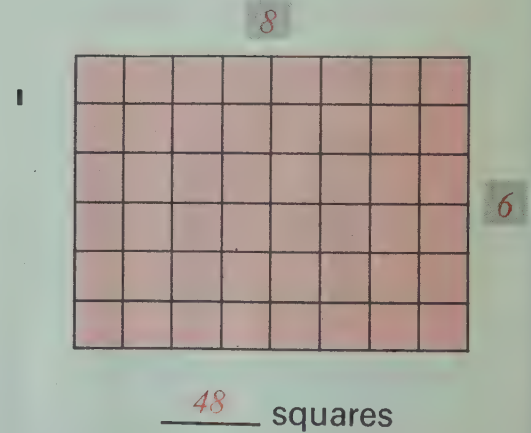
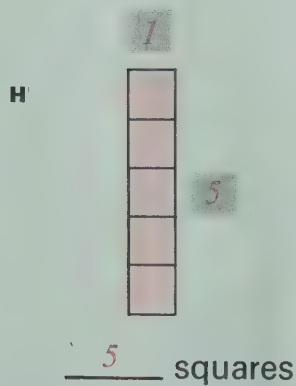
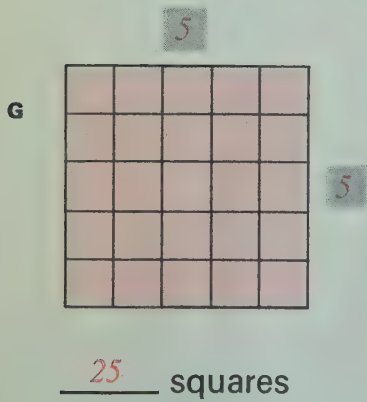
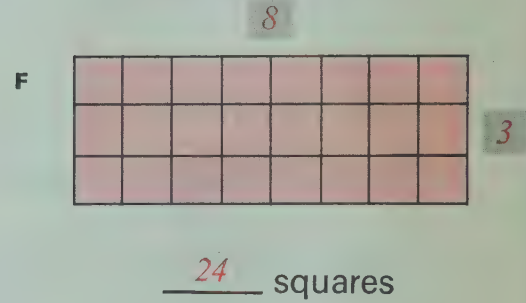
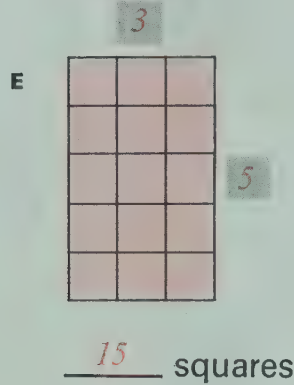
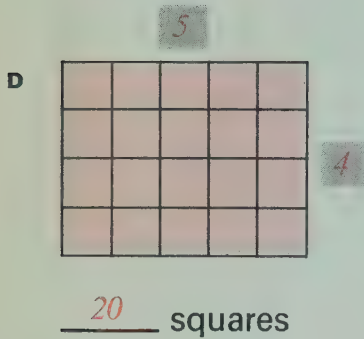
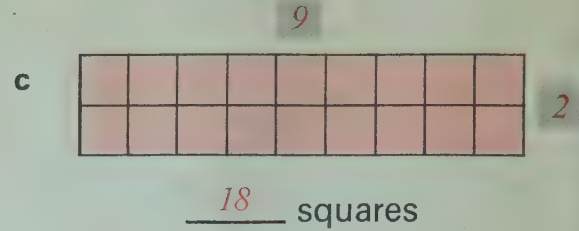
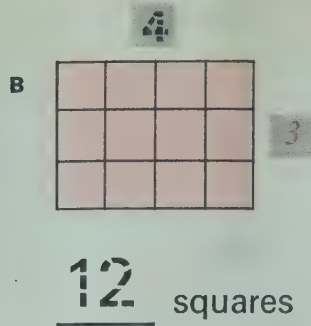
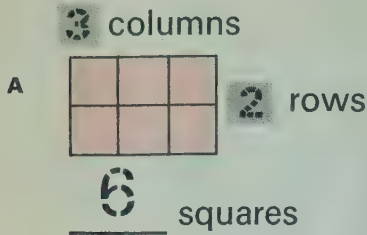


4. Fill in each blank. Then solve the equation.

- A There are 5 twos in 10.  $\rightarrow 10 \div 2 = \boxed{5}$
- B There are 3 sixes in 18.  $\rightarrow 18 \div 6 = \boxed{3}$
- C There are 3 fours in 12.  $\rightarrow 12 \div 4 = \boxed{3}$
- D There are 7 threes in 21.  $\rightarrow 21 \div 3 = \boxed{7}$



1. Give the number of rows, columns, and squares for each rectangular region.



2. Solve the division equations. Your work in exercise 1 will help you.

A  $12 \div 3 = \boxed{4}$

E  $20 \div 5 = \boxed{4}$

I  $6 \div 3 = \boxed{2}$

B  $6 \div 2 = \boxed{3}$

F  $5 \div 1 = \boxed{5}$

J  $48 \div 8 = \boxed{6}$

C  $15 \div 3 = \boxed{5}$

G  $24 \div 3 = \boxed{8}$

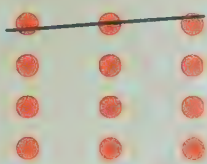
K  $5 \div 5 = \boxed{1}$

D  $25 \div 5 = \boxed{5}$

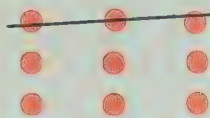
H  $18 \div 2 = \boxed{9}$

L  $24 \div 8 = \boxed{3}$

1. Complete each subtraction equation. Then fill in the blanks and complete the division equation.



$$12 - 3 = \boxed{9}$$



$$9 - 3 = \boxed{6}$$



$$6 - 3 = \boxed{3}$$



$$3 - 3 = \boxed{0}$$

Three was subtracted 4 times.

There are 4 threes in 12.  $\rightarrow 12 \div 3 = \boxed{4}$

2. Complete each subtraction equation. Then fill in the blanks and complete the division equation.



$$15 - 5 = \boxed{10}$$



$$10 - 5 = \boxed{5}$$



$$5 - 5 = \boxed{0}$$

Five was subtracted 3 times.

There are 3 fives in 15.  $\rightarrow 15 \div 5 = \boxed{3}$

3. Find the differences. Then fill in the blanks.

$$\begin{array}{r} 12 \\ - 2 \\ \hline 10 \end{array} \rightarrow \begin{array}{r} 10 \\ - 2 \\ \hline 8 \end{array} \rightarrow \begin{array}{r} 8 \\ - 2 \\ \hline 6 \end{array} \rightarrow \begin{array}{r} 6 \\ - 2 \\ \hline 4 \end{array} \rightarrow \begin{array}{r} 4 \\ - 2 \\ \hline 2 \end{array} \rightarrow \begin{array}{r} 2 \\ - 2 \\ \hline 0 \end{array}$$

Two was subtracted 6 times.

There are 6 twos in 12.  $\rightarrow 12 \div 2 = \boxed{6}$

4. Find the differences. Then fill in the blanks.

$$\begin{array}{r} 42 \\ - 6 \\ \hline 36 \end{array} \rightarrow \begin{array}{r} 36 \\ - 6 \\ \hline 30 \end{array} \rightarrow \begin{array}{r} 30 \\ - 6 \\ \hline 24 \end{array} \rightarrow \begin{array}{r} 24 \\ - 6 \\ \hline 18 \end{array} \rightarrow \begin{array}{r} 18 \\ - 6 \\ \hline 12 \end{array} \rightarrow \begin{array}{r} 12 \\ - 6 \\ \hline 6 \end{array} \rightarrow \begin{array}{r} 6 \\ - 6 \\ \hline 0 \end{array}$$

Six was subtracted 7 times.

There are 7 sixes in 42.  $\rightarrow 42 \div 6 = \boxed{7}$





A It takes 4 jumps of 9 to get from 36 to zero.

B There are 4 nines in 36.  $\rightarrow 36 \div 9 = \boxed{4}$



A It takes 7 jumps of 6 to get from 42 to zero.

B There are 7 sixes in 42.  $\rightarrow 42 \div 6 = \boxed{7}$



A It takes 6 jumps of 8 to get from 48 to zero.

B There are 6 eights in 48.  $\rightarrow 48 \div 8 = \boxed{6}$

4. Complete the jumps of 5 from 35 to zero.



There are 7 fives in 35.  $\rightarrow 35 \div 5 = \boxed{7}$

5. Complete the jumps of 8 from 40 to zero.



There are 5 eights in 40.  $\rightarrow 40 \div 8 = \boxed{5}$

6. Complete the jumps of 4 from 36 to zero.



There are 9 fours in 36.  $\rightarrow 36 \div 4 = \boxed{9}$

1. Find the quotients.

A To find this quotient, think  $? \times 5 = 20$ .

$$20 \div 5 = \boxed{4}$$

B To find this quotient, think  $? \times 4 = 24$ .

$$24 \div 4 = \boxed{6}$$

C To find this quotient, think  $? \times 3 = 15$ .

$$15 \div 3 = \boxed{5}$$

2. Find the missing factor. Then find the quotient.

A To find  $12 \div 3$ , it helps to think  $\boxed{4} \times 3 = 12$ .

$$12 \div 3 = \boxed{4}$$

B To find  $15 \div 5$ , it helps to think  $\boxed{3} \times 5 = 15$ .

$$15 \div 5 = \boxed{3}$$

C To find  $10 \div 2$ , it helps to think  $\boxed{5} \times 2 = 10$ .

$$10 \div 2 = \boxed{5}$$

D To find  $18 \div 3$ , it helps to think  $\boxed{6} \times 3 = 18$ .

$$18 \div 3 = \boxed{6}$$

3. Find the quotients.

A Since  $5 \times 7 = 35$ , we know that  $35 \div 7 = \boxed{5}$  and  $35 \div 5 = \boxed{7}$

B Since  $6 \times 8 = 48$ , we know that  $48 \div 6 = \boxed{8}$  and  $48 \div 8 = \boxed{6}$

C Since  $7 \times 6 = 42$ , we know that  $42 \div 7 = \boxed{6}$  and  $42 \div 6 = \boxed{7}$

D Since  $9 \times 8 = 72$ , we know that  $72 \div 8 = \boxed{9}$  and  $72 \div 9 = \boxed{8}$

4. Solve the equations.

A  $\boxed{2} \times 3 = 6$

$$6 \div 3 = \boxed{2}$$

B  $\boxed{4} \times 2 = 8$

$$8 \div 2 = \boxed{4}$$

C  $\boxed{2} \times 5 = 10$

$$10 \div 5 = \boxed{2}$$

D  $\boxed{3} \times 4 = 12$

$$12 \div 4 = \boxed{3}$$

E  $\boxed{5} \times 3 = 15$

$$15 \div 3 = \boxed{5}$$

F  $\boxed{3} \times 6 = 18$

$$18 \div 6 = \boxed{3}$$



1. The picture below suggests a way to think about division.  
Fill in the blanks and then solve the equations.



A There are 14 dots in all.

B There are 2 sets of 7.

C There are 2 sevens in 14.

D  $2 \times 7 = \underline{14}$

E  $7 \times 2 = \underline{14}$

F  $14 \div 7 = \underline{2}$

G  $14 \div 2 = \underline{7}$

2. Write two multiplication facts and two division facts for each picture.

A



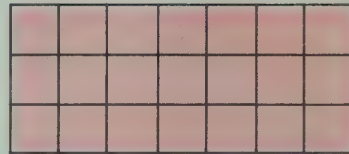
$\underline{2} \times \underline{5} = \underline{10}$

$\underline{5} \times \underline{2} = \underline{10}$

$\underline{10} \div \underline{2} = \underline{5}$

$\underline{10} \div \underline{5} = \underline{2}$

B



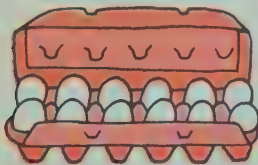
$\underline{3} \times \underline{7} = \underline{21}$

$\underline{7} \times \underline{3} = \underline{21}$

$\underline{21} \div \underline{3} = \underline{7}$

$\underline{21} \div \underline{7} = \underline{3}$

C



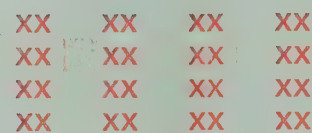
$\underline{2} \times \underline{6} = \underline{12}$

$\underline{6} \times \underline{2} = \underline{12}$

$\underline{12} \div \underline{2} = \underline{6}$

$\underline{12} \div \underline{6} = \underline{2}$

D



$\underline{4} \times \underline{8} = \underline{32}$

$\underline{8} \times \underline{4} = \underline{32}$

$\underline{32} \div \underline{4} = \underline{8}$

$\underline{32} \div \underline{8} = \underline{4}$

3. Solve the equations.

A  $4 \times \boxed{9} = 36$

B  $\boxed{8} \times 5 = 40$

C  $8 \times \boxed{6} = 48$

D  $3 \times \boxed{9} = 27$

4. Solve the equations.

A  $40 \div 5 = \boxed{8}$

B  $48 \div 6 = \boxed{8}$

C  $27 \div 9 = \boxed{3}$

D  $36 \div \boxed{9} = 4$

1. Solve the multiplication equation. Then solve the division equation.

A  $4 \times 6 = 24 \rightarrow 24 \div 6 = 4$

B  $5 \times 3 = 15 \rightarrow 15 \div 3 = 5$

C  $6 \times 3 = 18 \rightarrow 18 \div 6 = 3$

D  $2 \times 8 = 16 \rightarrow 16 \div 8 = 2$

E  $3 \times 9 = 27 \rightarrow 27 \div 3 = 9$

F  $4 \times 5 = 20 \rightarrow 20 \div 4 = 5$

G  $6 \times 5 = 30 \rightarrow 30 \div 5 = 6$

H  $5 \times 5 = 25 \rightarrow 25 \div 5 = 5$

I  $7 \times 3 = 21 \rightarrow 21 \div 7 = 3$

J  $5 \times 6 = 30 \rightarrow 30 \div 6 = 5$

K  $3 \times 7 = 21 \rightarrow 21 \div 7 = 3$

L  $6 \times 6 = 36 \rightarrow 36 \div 6 = 6$

M  $5 \times 7 = 35 \rightarrow 35 \div 7 = 5$

N  $4 \times 8 = 32 \rightarrow 32 \div 8 = 4$

O  $7 \times 4 = 28 \rightarrow 28 \div 4 = 7$

P  $8 \times 3 = 24 \rightarrow 24 \div 3 = 8$

Q  $4 \times 4 = 16 \rightarrow 16 \div 4 = 4$

R  $2 \times 9 = 18 \rightarrow 18 \div 9 = 2$

2. Find the products.

A  $6 \times 2 = 12$

E  $8 \times 3 = 24$

I  $7 \times 7 = 49$

M  $7 \times 8 = 56$

B  $5 \times 7 = 35$

F  $9 \times 2 = 18$

J  $8 \times 2 = 16$

N  $9 \times 7 = 63$

C  $4 \times 8 = 32$

G  $7 \times 4 = 28$

K  $3 \times 3 = 9$

O  $5 \times 5 = 25$

D  $3 \times 9 = 27$

H  $6 \times 7 = 42$

L  $8 \times 9 = 72$

P  $8 \times 8 = 64$

3. Find the quotients. (Hint: See exercise 2.)

A  $24 \div 4 = 6$

E  $24 \div 3 = 8$

I  $54 \div 6 = 9$

M  $48 \div 8 = 6$

B  $27 \div 9 = 3$

F  $18 \div 2 = 9$

J  $72 \div 9 = 8$

N  $64 \div 8 = 8$

C  $32 \div 8 = 4$

G  $28 \div 4 = 7$

K  $9 \div 3 = 3$

O  $25 \div 5 = 5$

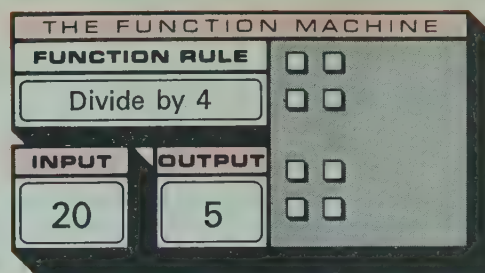
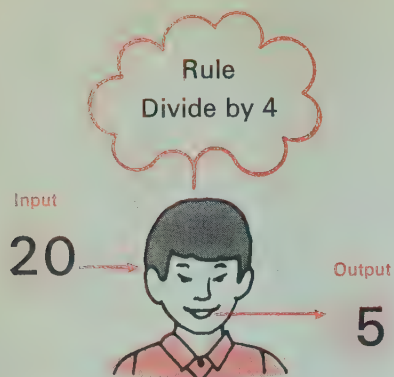
D  $35 \div 7 = 5$

H  $42 \div 6 = 7$

L  $16 \div 2 = 8$

P  $63 \div 9 = 7$





Think about the function machine and give the missing numbers.

1. Function Rule

Divide by 4

Input Output

A  
B  
C  
D

20	5
16	4
12	3
4	1
8	2
24	6

2. Function Rule

Divide by 3

Input Output

A  
B  
C  
D

15	5
9	3
6	2
12	4
3	1
18	6

3. Function Rule

Divide by 2

Input Output

A  
B  
C  
D  
E

10	5
12	6
8	4
14	7
18	9
0	0

4. Function Rule

Divide by 1

Input Output

A  
B  
C  
D  
E

7	7
6	6
17	17
12	12
13	13
1	1

5. Function Rule

Add 9

Input Output

A  
B  
C  
D  
E  
F

8	17
7	16
6	15
10	19
0	9
1	10

6. Function Rule

Subtract 7

Input Output

A  
B  
C  
D  
E  
F

14	7
10	3
11	4
7	0
17	10
27	20

7. Function Rule

Multiply by 6

Input Output

A  
B  
C  
D  
E  
F

6	36
5	30
2	12
4	24
0	0
1	6

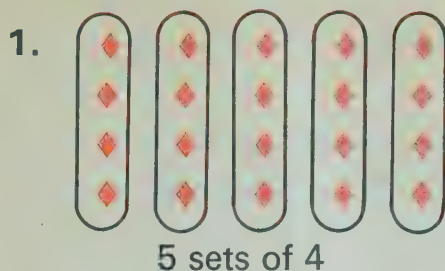
8. Function Rule

Divide by 5

Input Output

A  
B  
C  
D  
E  
F

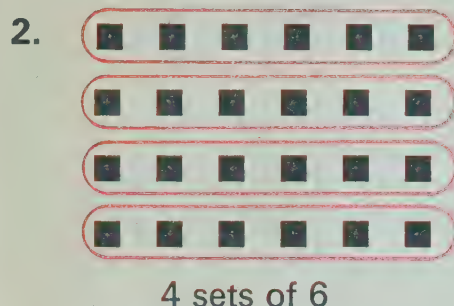
15	3
5	1
10	2
0	0
25	5
35	7



$$5 \times 4 = \boxed{20}$$

$$20 \div 4 = \boxed{5}$$

$$20 \div 5 = \boxed{4}$$



$$4 \times 6 = \boxed{24}$$

$$24 \div 6 = \boxed{4}$$

$$24 \div 4 = \boxed{6}$$

3. 18 marbles.  
3 in each bag.



$$18 \div 3 = \boxed{6}$$

There are 6 bags of marbles.

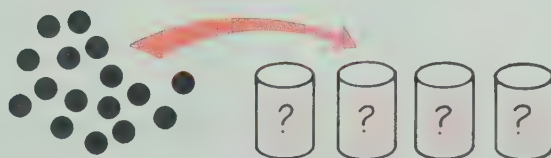
4. 30 marbles.  
Same number in each bag.



$$30 \div 5 = \boxed{6}$$

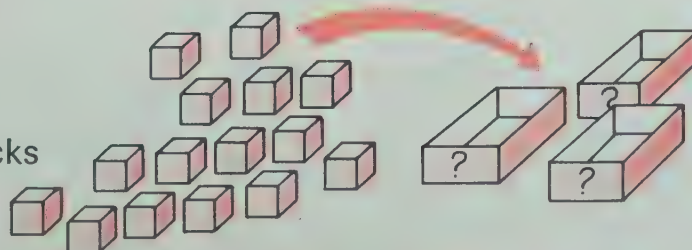
There are 6 marbles in each bag.

5. Put the same number of marbles in each can.



There are 4 marbles in each can.

6. Put the same number of blocks in each box.



There are 5 blocks in each box.

7. Put 3 balls in each sack.



3 sacks are needed to hold all the balls.



Write a division equation for each problem.  
Then fill the blank in the sentence.

1. Jim had 32 baseball cards. He put them in stacks of 8. How many stacks of 8 did he have?

$$\underline{32 \div 8 = 4}$$

There were 4 stacks of 8 cards.



2. Jane spent 24 cents for candy bars. Each bar cost 4 cents. How many did she buy?

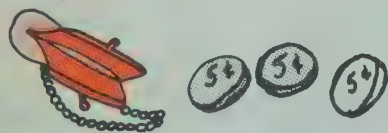
$$\underline{24 \div 4 = 6}$$

Jane bought 6 candy bars.

3. Summer camp lasts 21 days. This is how many weeks?

$$\underline{21 \div 7 = 3}$$

Summer camp lasts 3 weeks.



4. Ann has 30 cents worth of nickels. How many nickels does she have?

$$\underline{30 \div 5 = 6}$$

Ann has 6 nickels.

5. There are 45 boys. 9 boys are put on each team. How many teams are there?

$$\underline{45 \div 9 = 5}$$

There are 5 teams.

6. There are 35 seats in Sue's class. There are 5 seats in each row. How many rows are there?

$$\underline{35 \div 5 = 7}$$

There are 7 rows of seats.

7. There are 30 children going to a picnic. If 6 children ride in each car, how many cars will be needed?

$$\underline{30 \div 6 = 5}$$

It will take 5 cars for the picnic.

8. A large can holds 36 glasses of milk. There are 4 glasses in a litre. How many litres does the can hold?

$$\underline{36 \div 4 = 9}$$

The can holds 9 litres of milk.

9. Mr. Field works 7 hours a day. How many days does it take for him to work 35 hours?

$$\underline{35 \div 7 = 5}$$

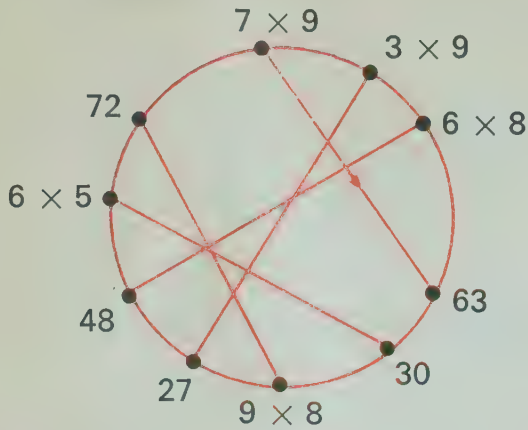
It takes 5 days for Mr. Field to work 35 hours.

10. There are 7 days in a week. How many weeks in 42 days?

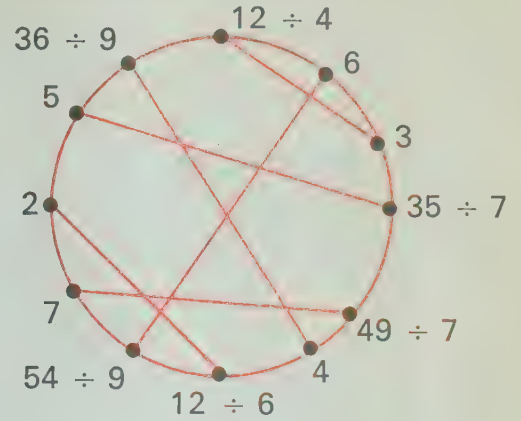
$$\underline{42 \div 7 = 6}$$

6 weeks.

1. Draw lines to connect the product to its factors.



2. Draw lines to connect the division problem to its quotient.



3. Give the missing number in each part.

A

**IF**

1 car  
4 wheels

**THEN**

5 cars  
20 wheels

B

**IF**

3 quarters  
6 bars

**THEN**

1 quarter  
2 bars

C

**IF**

35 jumps  
1 minute

**THEN**

70 jumps  
2 minutes

D

**IF**

1 month  
30 days

**THEN**

4 months  
120 days

E

**IF**

1 metre  
10 decimetres

**THEN**

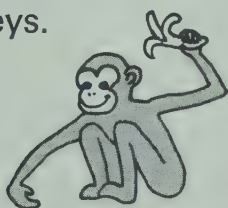
3 metres  
30 decimetres



1. 27 cents. Oranges, 9 cents each.  
How many oranges can we buy? 3

2. 30 seats. Same number in  
each row. 6 rows. How  
many seats in each row? 5

3. 48 bananas. 6 monkeys.  
How many bananas  
per monkey? 8



4. 24 children.  
16 girls.  
How many boys? 8

5. 12 girls. 19 boys.  
6 adults.  
How many people? 37




6. 4 dogs. 32 fleas.  
Same number on each dog.  
How many fleas on each dog? 8

7. 21 dollars. 3 dollars for a hat.  
How many hats? 7

8. 18 marbles.  
Same number to each of 3 boys.  
How many for each boy? 6


9. 32 players for 4 teams. How  
many players for each team? 8

10. 62 apples.  
37 of them bad.   
How many good apples? 25

11. 3 pieces per box.  
9 boxes.  
How many pieces? 27

12. 7 days per week.  
6 weeks.  
How many days? 42

13. 6 men. 9 women.  
38 children.  
How many people? 53

14. 50 cents.  
Circus ticket, 35 cents.   
How much change? 15¢

15. 2 days off each week.  
6 weeks.  
How many days off? 12

16. 35 school days. 5 school days  
per week. How many weeks? 7

17. 36 pieces of cheese.  
9 mice. How many  
pieces of cheese  
for each mouse? 4

1. Find the quotients.

A Since  $20 \div 4 = 5$ ,  
we know  $24 \div 4 =$  6 .

B Since  $10 \div 2 = 5$ ,  
we know  $12 \div 2 =$  6 .

C Since  $30 \div 6 = 5$ ,  
we know  $30 \div 5 =$  6 .

D Since  $30 \div 6 = 5$ ,  
we know  $36 \div 6 =$  6 .

E Since  $40 \div 8 = 5$ ,  
we know  $48 \div 8 =$  6 .

F Since  $18 \div 3 = 6$ ,  
we know  $21 \div 3 =$  7 .

G Since  $45 \div 9 = 5$ ,  
we know  $54 \div 9 =$  6 .

H Since  $48 \div 8 = 6$ ,  
we know  $48 \div 6 =$  8 .

I Since  $48 \div 8 = 6$ ,  
we know  $56 \div 8 =$  7 .

J Since  $30 \div 5 = 6$ ,  
we know  $35 \div 5 =$  7 .

2. Find the products and quotients.

A  $4 \times 5 =$  20  $\longrightarrow 20 \div 5 =$  4  $\longrightarrow 25 \div 5 =$  5

B  $6 \times 3 =$  18  $\longrightarrow 18 \div 3 =$  6  $\longrightarrow 18 \div 6 =$  3

C  $4 \times 3 =$  12  $\longrightarrow 12 \div 3 =$  4  $\longrightarrow 15 \div 3 =$  5

D  $8 \times 2 =$  16  $\longrightarrow 16 \div 2 =$  8  $\longrightarrow 18 \div 2 =$  9

E  $6 \times 4 =$  24  $\longrightarrow 24 \div 4 =$  6  $\longrightarrow 20 \div 4 =$  5

F  $7 \times 3 =$  21  $\longrightarrow 21 \div 3 =$  7  $\longrightarrow 24 \div 3 =$  8

G  $2 \times 9 =$  18  $\longrightarrow 18 \div 9 =$  2  $\longrightarrow 36 \div 9 =$  4

3. Find the quotients.

A  $8 \div 4 =$  2 and  $12 \div 4 =$  3  $\longrightarrow 20 \div 4 =$  5

B  $10 \div 2 =$  5 and  $8 \div 2 =$  4  $\longrightarrow 18 \div 2 =$  9

C  $20 \div 4 =$  5 and  $4 \div 4 =$  1  $\longrightarrow 24 \div 4 =$  6

D  $30 \div 6 =$  5 and  $12 \div 6 =$  2  $\longrightarrow 42 \div 6 =$  7



1. Ring as many sets of 7 as you can.

A There are 4 sets of 7.

B Solve:  $28 \div 7 =$  4



2. Find the differences. Then solve the equation.

$$\begin{array}{r} 14 \\ -2 \\ \hline 12 \end{array} \quad \begin{array}{r} 12 \\ -2 \\ \hline 10 \end{array} \quad \begin{array}{r} 10 \\ -2 \\ \hline 8 \end{array} \quad \begin{array}{r} 8 \\ -2 \\ \hline 6 \end{array} \quad \begin{array}{r} 6 \\ -2 \\ \hline 4 \end{array} \quad \begin{array}{r} 4 \\ -2 \\ \hline 2 \end{array} \quad \begin{array}{r} 2 \\ -2 \\ \hline 0 \end{array}$$

$14 \div 2 =$  7



A It takes 4 jumps of 6 to get from 24 to zero.

B Solve:  $24 \div 6 =$  4

4. Since  $8 \times 9 = 72$ , we know that  $72 \div 9 =$  8 and  $72 \div 8 =$  9

5. Complete the division equation for this problem:  
20 cents in all.  
4 cents for each candy cane.  
How many candy canes can we buy?

$$\underline{20 \div 4 = 5}$$

6. Jim divided 36 baseball cards equally among four friends. How many did each friend get? 9

7. Solve: A  $32 \div 4 =$  8

B  $24 \div 6 =$  4

C  $35 \div 5 =$  7

## CHANGE OF PACE

Give the correct sign (+, -, ×, ÷) for each

Examples:  $3 \div 5 = 8$      $18 \div 3 = 6$

1.  $6 \div 3 = 9$

4.  $5 \div 9 = 14$

7.  $12 \div 3 = 15$

10.  $10 \div 5 = 5$

2.  $7 \div 3 = 21$

5.  $7 \div 7 = 0$

8.  $12 \div 3 = 4$

11.  $10 \div 5 = 50$

3.  $12 \div 2 = 10$

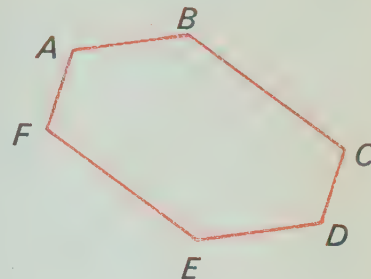
6.  $20 \div 4 = 5$

9.  $12 \div 3 = 9$

12.  $10 \div 5 = 2$

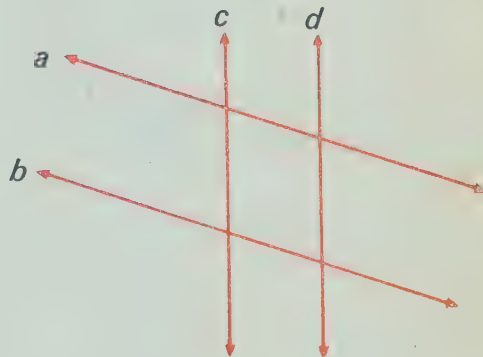
1. Fill in each blank with the name of one of the segments shown in the figure.

- A  $\overline{AB}$  is parallel to  $\overline{ED}$ .
- B  $\overline{AF}$  is parallel to  $\overline{CD}$ .
- C  $\overline{FE}$  is parallel to  $\overline{BC}$ .



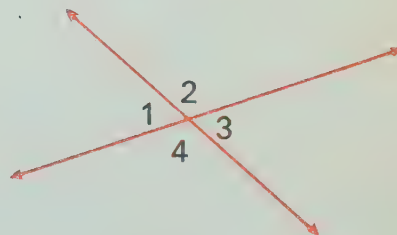
2. Fill in each blank with the name of one of the lines shown at the right.

- A Line  $a$  is parallel to line  $b$ .
- B Line  $c$  is parallel to line  $d$ .
- C Line  $b$  is parallel to line  $a$ .
- D Line  $d$  is parallel to line  $c$ .



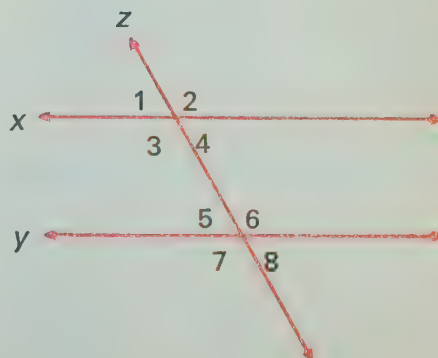
3. Refer to the pair of lines at the right to help you fill in each blank below.

- A Angle 2 is the same size as angle 4.
- B Angle 3 is the same size as angle 1.

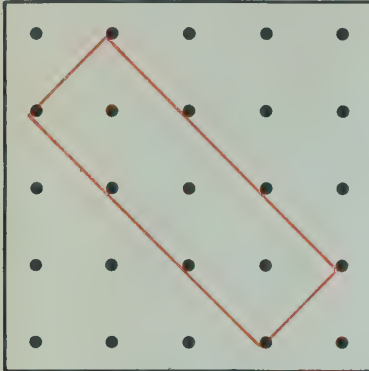


4. Refer to the figure at the right to help you fill in each blank below.

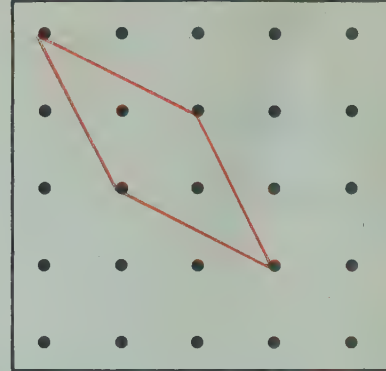
- A Line  $x$  is parallel to line  $y$ .
- B Angle 2 is the same size as angle 6. Angle 2 is also the same size as angle 3 and angle 7.
- C Angle 1 is the same size as angle 4, angle 5, and angle 8.



1. A **rectangle** has two pair of parallel sides and four right angles. Complete the drawing to make a rectangle.



2. A **rhombus** has two pair of parallel sides and all four sides of the same length. Complete the drawing to form a rhombus.



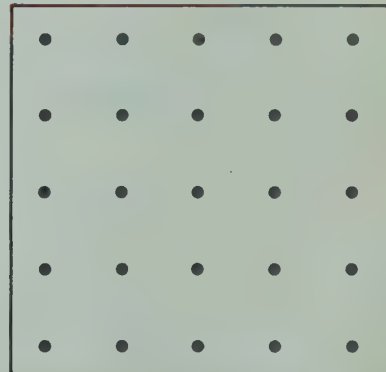
3. Draw a quadrilateral so that each side is a different length.

*Answers will vary.*



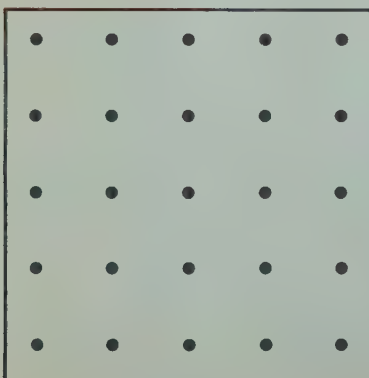
4. A **parallelogram** has two pair of parallel sides. Draw a parallelogram.

*Answers will vary.*

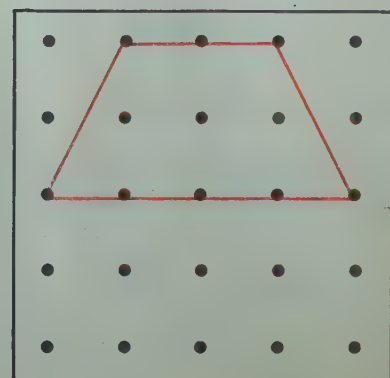


5. A **square** has four right angles and all four sides of the same length. Draw a square.

*Answers will vary.*

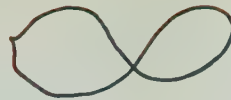


6. A **trapezoid** has one pair of parallel sides. Complete the drawing to form a trapezoid.





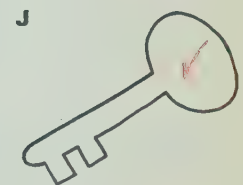
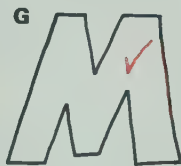
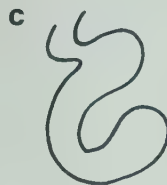
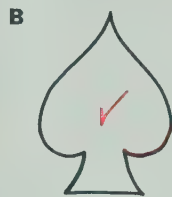
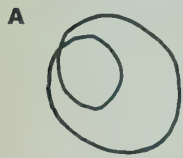
A **closed curve** is a figure that begins and ends at the same point.



A **simple closed curve** is a closed curve that does not cross itself.



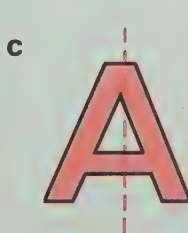
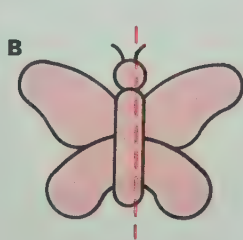
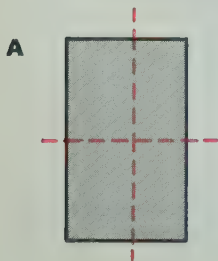
1. Place a ✓ inside the figures that are **simple closed curves**.



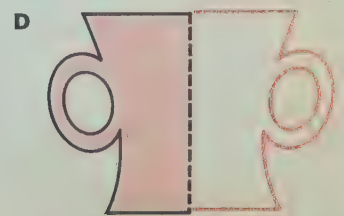
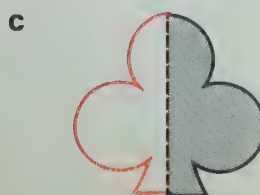
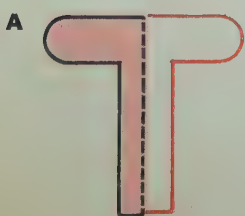
A figure is **symmetric** if you can fold it so that one half exactly matches the other half.



2. For each figure below, think about how you would fold it to make one half of it match the other half. Then use your ruler to draw a dotted line through each figure to show that they are symmetric. (Hint: Some figures may have more than one line of symmetry.)



3. Complete the drawing to show how each figure would look when unfolded.



1. In the blanks below, write the letter of the figure that matches each name.

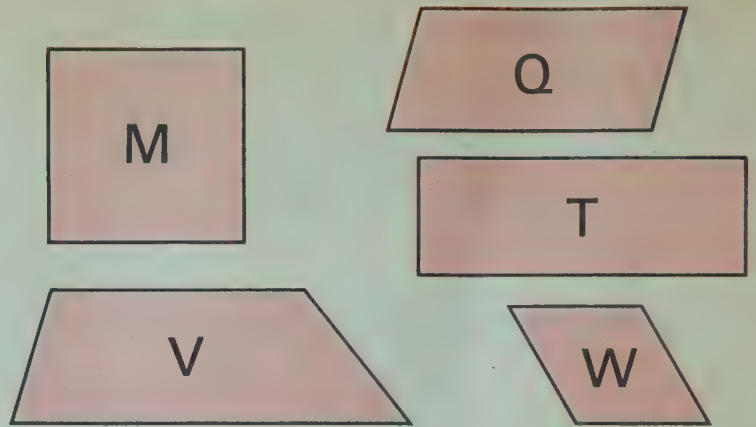
A Rectangle T

B Parallelogram Q

C Square M

D Trapezoid V

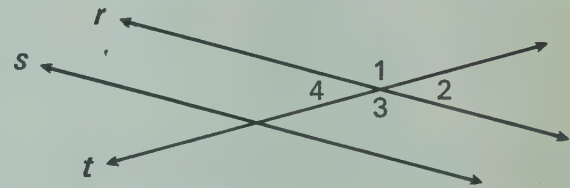
E Rhombus W



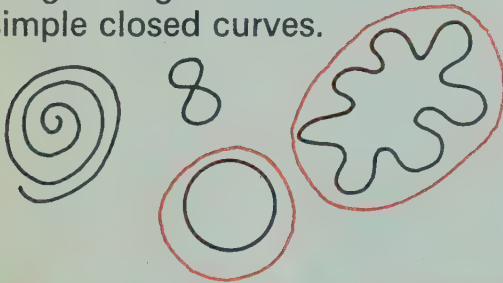
2. In the figure at the right,

line  $s$  is parallel to line  $r$

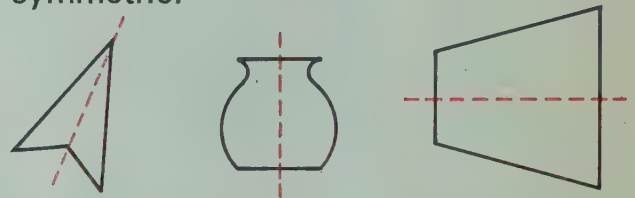
and angle 3 is the same size as angle 1.



3. Ring the figures that are simple closed curves.

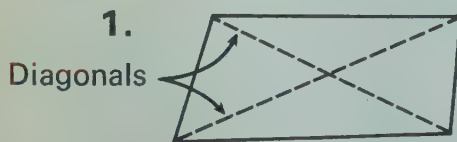


4. Draw a dotted line through each figure to show that they are symmetric.

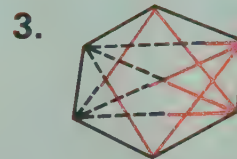
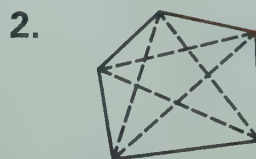


## CHANGE OF PACE

Draw all possible diagonals for each figure.



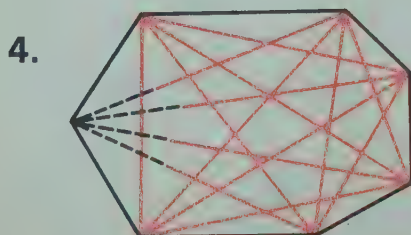
Diagonals



How many → 2  
did you  
draw?

5

9

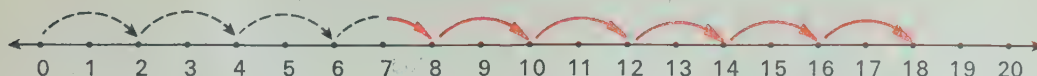


5.

How many  
did you  
draw? → 14

20

1. Complete the jumps of 2 from zero to 18.



- A After 4 jumps, you landed at 8.  
 B After 5 jumps, you landed at 10.  
 C After 7 jumps, you landed at 14.  
 D After 9 jumps, you landed at 18.  
 E After 10 jumps, you would land at 20.  
 F After 15 jumps, you would land at 30.

The landing points represent the **even** numbers.  
 The other numbers are called **odd** numbers.

2. Each **even** number ends with 0, 2, 4, 6, or 8.

Each **odd** number ends with 1, 3, 5, 7, or 9.

3. Answer "even" or "odd" for each number.

- A 14 even      C 33 odd      E 726 even      G 1001 odd  
 B 15 odd      D 40 even      F 397 odd      H 5096 even

4. Fill in the addition and multiplication tables.

A

+	2	4	6
8	<u>10</u>	<u>12</u>	<u>14</u>
0	<u>2</u>	<u>4</u>	<u>6</u>
10	<u>12</u>	<u>14</u>	<u>16</u>

B

+	12	4	10
9	<u>21</u>	<u>13</u>	<u>19</u>
31	<u>53</u>	<u>35</u>	<u>41</u>
53	<u>65</u>	<u>57</u>	<u>63</u>

C

×	3	7	5
1	<u>3</u>	<u>7</u>	<u>5</u>
3	<u>9</u>	<u>35</u>	<u>15</u>
9	<u>27</u>	<u>63</u>	<u>45</u>

5. Answer "even" or "odd."

- A The sum of two even numbers is an even number.  
 B The sum of an even number and an odd number is an odd number.  
 C The product of two odd numbers is an odd number.



1. Give the missing numbers.

- A The first ten multiples of 2 are 0, 2, 4, 6, 8, 10, 12, 14, 16, 18.
- B The first ten multiples of 3 are 0, 3, 6, 9, 12, 15, 18, 21, 24, 27.
- C The first eight multiples of 4 are 0, 4, 8, 12, 16, 20, 24, 28.
- D The first eight multiples of 5 are 0, 5, 10, 15, 20, 25, 30, 35.

2. Give the correct number for each blank.

- A Since  $3 \times 7 = 21$ , we know that both 3 and 7 are factors of 21.
- B Since  $5 \times 6 = 30$ , we know that both 5 and 6 are factors of 30.
- C Since  $4 \times 7 = 28$ , we know that both 4 and 7 are factors of 28.
- D Since  $6 \times 4 = 24$ , we know that both 6 and 4 are factors of 24.

3. Write a different multiplication equation on each line.

A 1  $\times$  12 = 12

2  $\times$  6 = 12

3  $\times$  4 = 12

The factors of 12 are

1, 2, 3, 4, 6, 12

B 1  $\times$  20 = 20

2  $\times$  10 = 20

4  $\times$  5 = 20

The factors of 20 are

1, 2, 4, 5, 10, 20

C 1  $\times$  15 = 15

3  $\times$  5 = 15

The factors of 15 are

1, 3, 5, 15

D 1  $\times$  18 = 18

2  $\times$  9 = 18

3  $\times$  6 = 18

The factors of 18 are

1, 2, 3, 6, 9, 18

E 1  $\times$  10 = 10

2  $\times$  5 = 10

The factors of 10 are

1, 2, 5, 10

F 1  $\times$  16 = 16

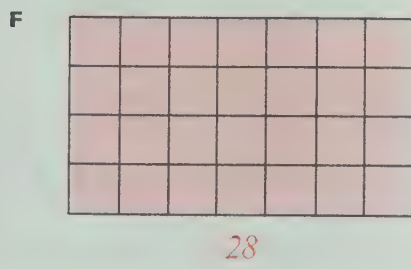
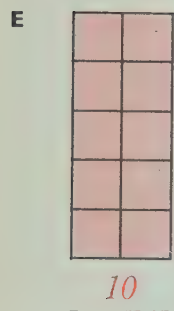
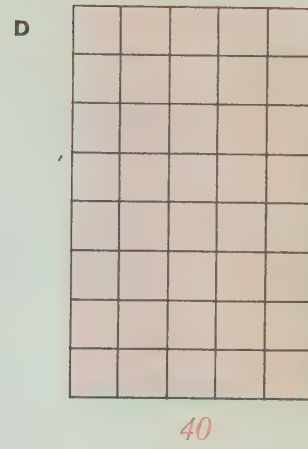
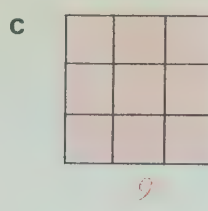
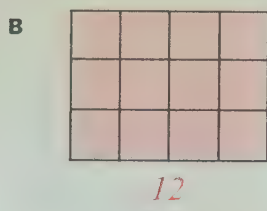
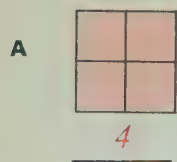
2  $\times$  8 = 16

4  $\times$  4 = 16

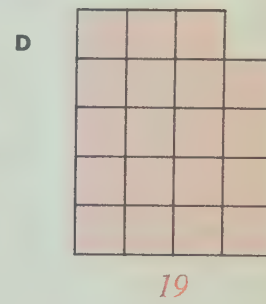
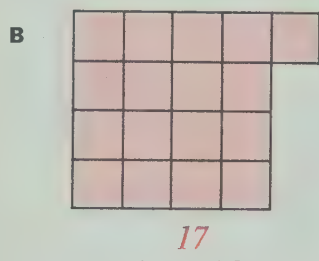
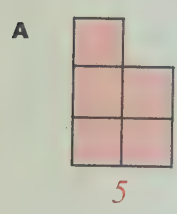
The factors of 16 are

1, 2, 4, 8, 16

1. Give the number of squares in each rectangular shape.



2. Numbers that are greater than 1 and do not form rectangular shapes are called **prime numbers**. Give the number of squares for each shape.



3. When you can, write a second multiplication equation using different factors.

A  $5 \times 1 = 5$             $\times$          $= 5$

B  $6 \times 1 = 6$     2  $\times$  3  $= 6$

C  $7 \times 1 = 7$             $\times$          $= 7$

D  $8 \times 1 = 8$     2  $\times$  4  $= 8$

E  $9 \times 1 = 9$     3  $\times$  3  $= 9$

F  $13 \times 1 = 13$             $\times$          $= 13$

Some numbers (4, 6, 8, 9, etc.) have more than two factors.

Some numbers have exactly two different factors. These numbers are called **prime numbers**.

4. List the prime numbers less than 20. 2, 3, 5, 7, 11, 13, 17, 19

1. Answer "even" or "odd" for each blank.

- A The number 78 is an even number.
- B The number 87 is an odd number.
- C If a number ends in 0, 2, 4, 6, or 8, it is an even number.
- D If a number ends in 1, 3, 5, 7, or 9, it is an odd number.

2. A Since  $5 \times 7 = 35$ , we know that 5 and 7 are factors of 35.  
35 is a multiple of 5 and 7.

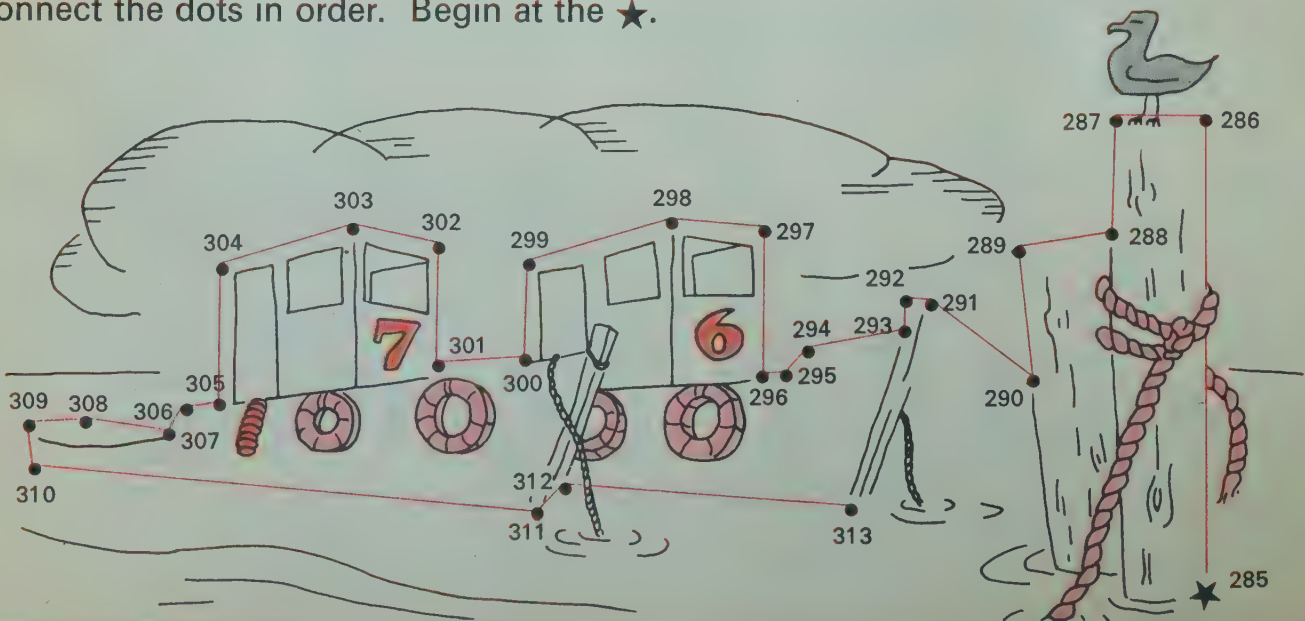
B Since  $6 \times 4 = 24$ , we know that 6 and 4 are factors of 24.  
24 is a multiple of 6 and 4.

3. Answer "true" or "false" for each exercise.

- A The number 5 is a prime number. true
- B The number 9 is a prime number. false
- C Each odd number is a prime number. false
- D The prime numbers have exactly 2 factors. true




## CHANGE OF PACE

Connect the dots in order. Begin at the ★.





1. Complete the table.

	Sets of 10 or 100	Number of sets	Number in all	Equation
A		6	60	$6 \times 10 = 60$
B		3	30	$3 \times 10 = 30$
C		5	50	$5 \times 10 = 50$
D		4	400	$4 \times 100 = 400$
E		7	700	$7 \times 100 = 700$

2. A For 7 tens, we write 70.  $\rightarrow 7 \times 10 = \underline{70}$   
 B For 3 hundreds, we write 300.  $\rightarrow 3 \times 100 = \underline{300}$

3. To multiply

$35 \times 10 \rightarrow (30 \times 10) + (5 \times 10)$   
 $\downarrow \qquad \qquad \downarrow$   
300 + 50 = 350

4. Find the two products and their sum. Then solve the equation.

A  $(70 \times 10) + (3 \times 10)$   
 $\downarrow \qquad \qquad \downarrow$   
700 + 30 = 730  
 $73 \times 10 = \underline{730}$

C  $(30 \times 10) + (7 \times 10)$   
 $\downarrow \qquad \qquad \downarrow$   
300 + 70 = 370  
 $37 \times 10 = \underline{370}$

B  $(90 \times 10) + (5 \times 10)$   
 $\downarrow \qquad \qquad \downarrow$   
900 + 50 = 950  
 $95 \times 10 = \underline{950}$

D  $(50 \times 100) + (3 \times 100)$   
 $\downarrow \qquad \qquad \downarrow$   
5000 + 300 = 5300  
 $53 \times 100 = \underline{5300}$

1. Give the missing numbers.

A  $4 \times 70$

$4 \times 7 \times 10$

28  $\times 10$

B  $9 \times 30$

$9 \times 3 \times 10$

27  $\times 10$

C  $5 \times 60$

$5 \times 6 \times 10$

30  $\times 10$

2. Solve the equations.

A  $4 \times 80 = \underline{32} \times 10 = \underline{320}$

D  $7 \times 20 = \underline{14} \times 10 = \underline{140}$

B  $9 \times 20 = \underline{18} \times 10 = \underline{180}$

E  $4 \times 60 = \underline{24} \times 10 = \underline{240}$

C  $6 \times 30 = \underline{18} \times 10 = \underline{180}$

F  $2 \times 90 = \underline{18} \times 10 = \underline{180}$

3. Find the products.

A  $6 \times 3 = \underline{18} \rightarrow 6 \times 30 = \underline{180} \rightarrow 6 \times 300 = \underline{1800}$

B  $4 \times 7 = \underline{28} \rightarrow 4 \times 70 = \underline{280} \rightarrow 4 \times 700 = \underline{2800}$

C  $2 \times 9 = \underline{18} \rightarrow 2 \times 90 = \underline{180} \rightarrow 2 \times 900 = \underline{1800}$

D  $4 \times 5 = \underline{20} \rightarrow 4 \times 50 = \underline{200} \rightarrow 4 \times 500 = \underline{2000}$

4. Solve the equations.

A  $3 \times 70 = 21 \times 10 = \underline{210}$

D  $6 \times 200 = 12 \times \underline{100} = 1200$

B  $6 \times 30 = 18 \times \underline{10} = 180$

E  $9 \times 300 = \underline{27} \times 100 = 2700$

C  $4 \times 80 = \underline{32} \times 10 = 320$

F  $8 \times 400 = \underline{32} \times 100 = \underline{3200}$

5. Find the products.

A  $8 \times 10 = \underline{80}$

E  $10 \times 6 = \underline{60}$

I  $4 \times 90 = \underline{360}$

B  $8 \times 100 = \underline{800}$

F  $3 \times 50 = \underline{150}$

J  $30 \times 8 = \underline{240}$

C  $8 \times 20 = \underline{160}$

G  $7 \times 100 = \underline{700}$

K  $2 \times 700 = \underline{1400}$

D  $8 \times 200 = \underline{1600}$

H  $3 \times 400 = \underline{1200}$

L  $400 \times 3 = \underline{1200}$

1. You can "break apart" one of the factors when you multiply.

A Complete the equation for Jennifer.



$5 \times 7$   
5 fours and 5 threes

$$5 \times 7 = (5 \times 4) + (5 \times \underline{3})$$

B Complete the equation for Philip.



$3 \times 12$   
3 tens and 3 twos

$$3 \times 12 = (3 \times 10) + 3 \times \underline{2}$$

2. Solve the equations.

A Think:  
2 tens and 2 fours

$$2 \times 14 = (2 \times 10) + (2 \times \underline{4})$$

B Think:  
3 twenties and 3 fives

$$3 \times 25 = (3 \times 20) + (3 \times \underline{5})$$

C Think:  
4 tens and 4 sevens

$$4 \times 17 = (4 \times \underline{10}) + (4 \times 7)$$

D Think:  
5 thirties and 5 eights

$$5 \times 38 = (5 \times 30) + (5 \times \underline{8})$$

E Think:  
7 sixties and 7 twos

$$7 \times 62 = (7 \times \underline{60}) + (7 \times 2)$$

F Think:  
9 tens and 9 sixes

$$9 \times 16 = (9 \times 10) + (9 \times \underline{6})$$



## ● Using the Multiplication-Addition Principle

### 1. Solve the equations.

A  $3 \times 42 = (3 \times 40) + (3 \times \underline{2})$

B  $4 \times 27 = (4 \times \underline{20}) + (4 \times 7)$

C  $6 \times 21 = (6 \times 20) + (6 \times \underline{1})$

D  $9 \times 36 = (9 \times \underline{30}) + (9 \times 6)$

E  $8 \times 24 = (8 \times 20) + (8 \times \underline{4})$

F  $5 \times 78 = (5 \times \underline{70}) + (5 \times 8)$

### 2. Give the products. Then give their sum.

A To find  $3 \times 42$ ,

we add the products  $\begin{cases} 3 \times 40 = 120 \\ 3 \times 2 = 6 \end{cases}$

$3 \times 42 = 126$

B To find  $6 \times 32$ ,

we add the products  $\begin{cases} 6 \times 30 = 180 \\ 6 \times 2 = 12 \end{cases}$

$6 \times 32 = 192$

C To find  $4 \times 65$ ,

we add the products  $\begin{cases} 4 \times 60 = 240 \\ 4 \times 5 = 20 \end{cases}$

$4 \times 65 = 260$

D To find  $5 \times 37$ ,

we add the products  $\begin{cases} 5 \times 30 = 150 \\ 5 \times 7 = 35 \end{cases}$

$5 \times 37 = 185$

E To find  $2 \times 38$ ,

we add the products  $\begin{cases} 2 \times 30 = 60 \\ 2 \times 8 = 16 \end{cases}$

$2 \times 38 = 76$

F To find  $3 \times 64$ ,

we add the products  $\begin{cases} 3 \times 60 = 180 \\ 3 \times 4 = 12 \end{cases}$

$3 \times 64 = 192$

3. A Since  $3 \times 50 = 150$  and  $3 \times 7 = 21$ , we know that  $3 \times 57 = \underline{171}$ .

B Since  $4 \times 30 = 120$  and  $4 \times 4 = 16$ , we know that  $4 \times 34 = \underline{136}$ .

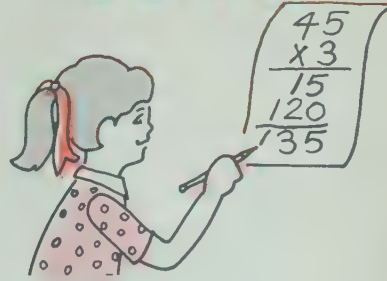
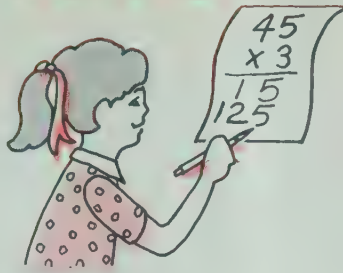
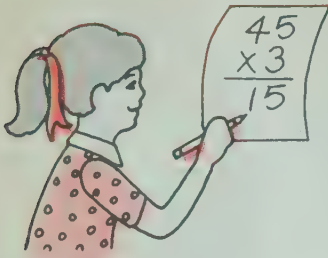
C Since  $5 \times 30 = 150$  and  $5 \times 5 = 25$ , we know that  $5 \times 35 = \underline{175}$ .

D Since  $7 \times 60 = 420$  and  $7 \times 7 = 49$ , we know that  $7 \times 67 = \underline{469}$ .

$$3 \times 5 = \underline{15}$$

$$3 \times 40 = \underline{120}$$

$$15 + 120 = \underline{135}$$



Solve the equation. Then give the number for the

1.

$$7 \times 2 = \underline{14}$$

$$\begin{array}{r} 62 \\ \times 7 \\ \hline 14 \end{array}$$

$$7 \times 60 = \underline{420}$$

$$\begin{array}{r} 62 \\ \times 7 \\ \hline 14 \\ 420 \end{array}$$

$$14 + 420 = \underline{434}$$

$$\begin{array}{r} 62 \\ \times 7 \\ \hline 14 \\ 420 \\ \hline 434 \end{array}$$

2.

$$6 \times 3 = \underline{18}$$

$$\begin{array}{r} 53 \\ \times 6 \\ \hline 18 \end{array}$$

$$6 \times 50 = \underline{300}$$

$$\begin{array}{r} 53 \\ \times 6 \\ \hline 18 \\ 300 \end{array}$$

$$18 + 300 = \underline{318}$$

$$\begin{array}{r} 53 \\ \times 6 \\ \hline 18 \\ 300 \\ \hline 318 \end{array}$$

3.

$$5 \times 6 = \underline{30}$$

$$\begin{array}{r} 46 \\ \times 5 \\ \hline 30 \end{array}$$

$$5 \times 40 = \underline{200}$$

$$\begin{array}{r} 46 \\ \times 5 \\ \hline 30 \\ 200 \end{array}$$

$$30 + 200 = \underline{230}$$

$$\begin{array}{r} 46 \\ \times 5 \\ \hline 30 \\ 200 \\ \hline 230 \end{array}$$

1. Solve the equations. Then find the product.

A  $3 \times 7 = \underline{21}$

$3 \times 30 = \underline{90}$

$$\begin{array}{r} 37 \\ \times 3 \\ \hline 111 \end{array}$$

B  $6 \times 2 = \underline{12}$

$6 \times 40 = \underline{240}$

$$\begin{array}{r} 42 \\ \times 6 \\ \hline 252 \end{array}$$

C  $5 \times 1 = \underline{5}$

$5 \times 80 = \underline{400}$

$$\begin{array}{r} 81 \\ \times 5 \\ \hline 405 \end{array}$$

D  $3 \times 7 = \underline{21}$

$3 \times 60 = \underline{180}$

$$\begin{array}{r} 67 \\ \times 3 \\ \hline 201 \end{array}$$

E  $4 \times 2 = \underline{8}$

$4 \times 90 = \underline{360}$

$$\begin{array}{r} 92 \\ \times 4 \\ \hline 368 \end{array}$$

F  $6 \times 8 = \underline{48}$

$6 \times 40 = \underline{240}$

$$\begin{array}{r} 48 \\ \times 6 \\ \hline 288 \end{array}$$

2. Find the products.

A  $\begin{array}{r} 72 \\ \times 3 \\ \hline 216 \end{array}$

B  $\begin{array}{r} 64 \\ \times 4 \\ \hline 256 \end{array}$

C  $\begin{array}{r} 35 \\ \times 2 \\ \hline 70 \end{array}$

D  $\begin{array}{r} 47 \\ \times 6 \\ \hline 282 \end{array}$

E  $\begin{array}{r} 36 \\ \times 3 \\ \hline 108 \end{array}$

F  $\begin{array}{r} 58 \\ \times 2 \\ \hline 116 \end{array}$

G  $\begin{array}{r} 25 \\ \times 5 \\ \hline 125 \end{array}$

H  $\begin{array}{r} 54 \\ \times 3 \\ \hline 162 \end{array}$

I  $\begin{array}{r} 61 \\ \times 7 \\ \hline 427 \end{array}$

J  $\begin{array}{r} 72 \\ \times 6 \\ \hline 432 \end{array}$

K  $\begin{array}{r} 83 \\ \times 4 \\ \hline 332 \end{array}$

L  $\begin{array}{r} 92 \\ \times 3 \\ \hline 276 \end{array}$

M  $\begin{array}{r} 28 \\ \times 3 \\ \hline 84 \end{array}$

N  $\begin{array}{r} 86 \\ \times 5 \\ \hline 430 \end{array}$

O  $\begin{array}{r} 33 \\ \times 5 \\ \hline 165 \end{array}$

P  $\begin{array}{r} 19 \\ \times 6 \\ \hline 114 \end{array}$

Q  $\begin{array}{r} 58 \\ \times 9 \\ \hline 522 \end{array}$

R  $\begin{array}{r} 77 \\ \times 8 \\ \hline 616 \end{array}$



1. Give the correct digit for each . Part A is an example for you to follow.

A  $7 \times 2 = 14$

$$\begin{array}{r} 1 \\ 52 \\ \times 7 \\ \hline 4 \end{array}$$

$7 \times 5 = 35$   
 $35 + 1 = 36$

$$\begin{array}{r} 1 \\ 52 \\ \times 7 \\ \hline 364 \end{array}$$

B  $5 \times 3 = 15$

$$\begin{array}{r} 1 \\ 43 \\ \times 5 \\ \hline 5 \end{array}$$

$5 \times 4 = 20$   
 $20 + 1 = 21$

$$\begin{array}{r} 1 \\ 43 \\ \times 5 \\ \hline 215 \end{array}$$

C  $7 \times 6 = 42$

$$\begin{array}{r} 4 \\ 36 \\ \times 7 \\ \hline 2 \end{array}$$

$7 \times 3 = 21$   
 $21 + 4 = 25$

$$\begin{array}{r} 4 \\ 36 \\ \times 7 \\ \hline 252 \end{array}$$

D  $3 \times 7 = 21$

$$\begin{array}{r} 2 \\ 57 \\ \times 3 \\ \hline 1 \end{array}$$

$3 \times 5 = 15$   
 $15 + 2 = 17$

$$\begin{array}{r} 2 \\ 57 \\ \times 3 \\ \hline 171 \end{array}$$

E  $4 \times 8 = 32$

$$\begin{array}{r} 3 \\ 58 \\ \times 4 \\ \hline 2 \end{array}$$

$4 \times 5 = 20$   
 $20 + 3 = 23$

$$\begin{array}{r} 3 \\ 58 \\ \times 4 \\ \hline 232 \end{array}$$

F  $8 \times 2 = 16$

$$\begin{array}{r} 1 \\ 62 \\ \times 8 \\ \hline 6 \end{array}$$

$8 \times 6 = 48$   
 $48 + 1 = 49$

$$\begin{array}{r} 1 \\ 62 \\ \times 8 \\ \hline 496 \end{array}$$

2. Find the products.

A  $\begin{array}{r} 43 \\ \times 4 \\ \hline 172 \end{array}$

B  $\begin{array}{r} 27 \\ \times 6 \\ \hline 162 \end{array}$

C  $\begin{array}{r} 52 \\ \times 3 \\ \hline 156 \end{array}$

D  $\begin{array}{r} 24 \\ \times 7 \\ \hline 168 \end{array}$

E  $\begin{array}{r} 57 \\ \times 5 \\ \hline 285 \end{array}$

F  $\begin{array}{r} 81 \\ \times 2 \\ \hline 162 \end{array}$

G  $\begin{array}{r} 91 \\ \times 6 \\ \hline 546 \end{array}$

H  $\begin{array}{r} 82 \\ \times 5 \\ \hline 410 \end{array}$

I  $\begin{array}{r} 75 \\ \times 3 \\ \hline 225 \end{array}$

J  $\begin{array}{r} 35 \\ \times 4 \\ \hline 140 \end{array}$

K  $\begin{array}{r} 46 \\ \times 2 \\ \hline 92 \end{array}$

L  $\begin{array}{r} 17 \\ \times 6 \\ \hline 102 \end{array}$

Solve each problem. Workspace is provided for you.

1. In a bicycle race the winner rode 23 kilometres each hour for 3 hours. How many kilometres did he travel?

69 kilometres

2. Mr. Smith figured he drove 57 kilometres each hour for 4 hours. How far did he drive?

228 kilometres

3. Tom's father drives his car 6 km on each litre of gas. How far can he drive on 8 litres of gas?

4. If a car can travel 9 km on a litre of gas, how far can it travel on 21 litres?

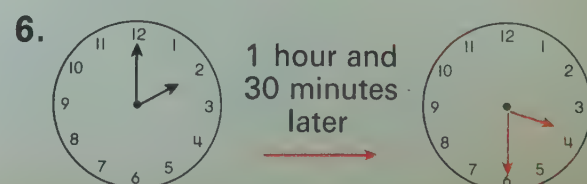
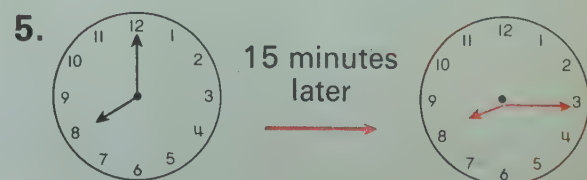
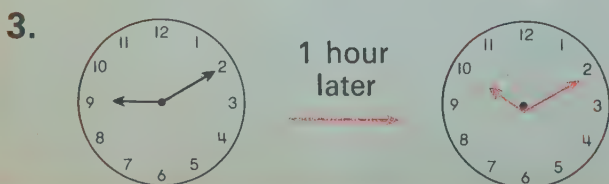
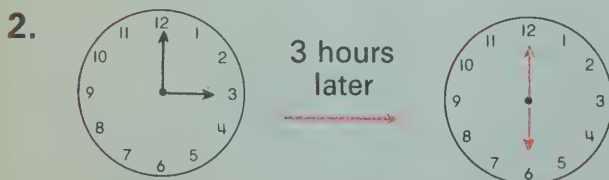
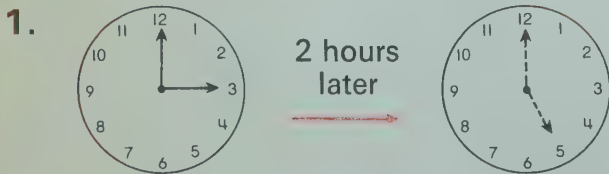
189 kilometres

5. A racing car was driven 160 kilometres per hour for 3 hours. How far did it travel?

480 kilometres

## CHANGE OF PACE

Show hands on the clocks.



1. Solve the equation. Then give the number for the

$$3 \times 8 = \underline{24} \quad 3 \times 40 = \underline{120} \quad 3 \times 600 = \underline{1800} \quad 24 + 120 + 1800 = \underline{1944}$$

$$\begin{array}{r} 648 \\ \times 3 \\ \hline 24 \end{array} \rightarrow \begin{array}{r} 648 \\ \times 3 \\ \hline 24 \end{array} \rightarrow \begin{array}{r} 648 \\ \times 3 \\ \hline 24 \\ 120 \\ \hline 1800 \end{array} \rightarrow \begin{array}{r} 648 \\ \times 3 \\ \hline 24 \\ 120 \\ 1800 \\ \hline 1944 \end{array}$$

2. Give the correct digit for each

$$3 \times 8 = 24$$

$$\begin{array}{r} 648 \\ \times 3 \\ \hline 4 \end{array}$$

$$3 \times 4 = 12$$

$$12 + 2 = 14$$

$$\begin{array}{r} 648 \\ \times 3 \\ \hline 44 \end{array}$$

$$3 \times 6 = 18$$

$$18 + 1 = 19$$

$$\begin{array}{r} 648 \\ \times 3 \\ \hline 1944 \end{array}$$

3. Find the products.

A  $\begin{array}{r} 526 \\ \times 3 \\ \hline 1578 \end{array}$

B  $\begin{array}{r} 348 \\ \times 4 \\ \hline 1392 \end{array}$

C  $\begin{array}{r} 276 \\ \times 5 \\ \hline 1380 \end{array}$

D  $\begin{array}{r} 521 \\ \times 2 \\ \hline 1042 \end{array}$

E  $\begin{array}{r} 346 \\ \times 6 \\ \hline 2076 \end{array}$

F  $\begin{array}{r} 537 \\ \times 3 \\ \hline 1611 \end{array}$

G  $\begin{array}{r} 291 \\ \times 2 \\ \hline 582 \end{array}$

H  $\begin{array}{r} 526 \\ \times 6 \\ \hline 3156 \end{array}$

I  $\begin{array}{r} 304 \\ \times 2 \\ \hline 608 \end{array}$

J  $\begin{array}{r} 271 \\ \times 3 \\ \hline 813 \end{array}$

K  $\begin{array}{r} 605 \\ \times 5 \\ \hline 3025 \end{array}$

L  $\begin{array}{r} 720 \\ \times 7 \\ \hline 5040 \end{array}$

M  $\begin{array}{r} 8324 \\ \times 5 \\ \hline 41620 \end{array}$

N  $\begin{array}{r} 5320 \\ \times 4 \\ \hline 21280 \end{array}$

O  $\begin{array}{r} 5412 \\ \times 4 \\ \hline 21648 \end{array}$

P  $\begin{array}{r} 7248 \\ \times 3 \\ \hline 21744 \end{array}$

Q  $\begin{array}{r} 5024 \\ \times 4 \\ \hline 20096 \end{array}$



1. Ring the multiplication problem that would give the better estimate for the first problem.

- |   |                 |               |               |   |                 |               |                |
|---|-----------------|---------------|---------------|---|-----------------|---------------|----------------|
| A | $2 \times 58$ : | $2 \times 50$ | $2 \times 60$ | D | $6 \times 91$ : | $6 \times 90$ | $6 \times 100$ |
| B | $4 \times 17$ : | $4 \times 10$ | $4 \times 20$ | E | $8 \times 59$ : | $8 \times 50$ | $8 \times 60$  |
| C | $3 \times 22$ : | $3 \times 20$ | $3 \times 30$ | F | $5 \times 33$ : | $5 \times 30$ | $5 \times 40$  |

2. Tell whether each product is **more** or **less** than 100.

- |   |               |             |   |               |             |   |               |             |
|---|---------------|-------------|---|---------------|-------------|---|---------------|-------------|
| A | $2 \times 55$ | <u>more</u> | C | $5 \times 19$ | <u>less</u> | E | $6 \times 15$ | <u>less</u> |
| B | $2 \times 45$ | <u>less</u> | D | $4 \times 29$ | <u>more</u> | F | $3 \times 34$ | <u>more</u> |

3. Put a ring around the best estimate of the product.

- |   |                  |       |       |     |   |                  |       |       |     |
|---|------------------|-------|-------|-----|---|------------------|-------|-------|-----|
| A | $4 \times 53$ :  | 100   | $200$ | 300 | E | $2 \times 199$ : | $400$ | 500   | 600 |
| B | $2 \times 201$ : | 200   | $400$ | 600 | F | $2 \times 105$ : | 150   | $200$ | 250 |
| C | $2 \times 49$ :  | $100$ | 200   | 300 | G | $4 \times 48$ :  | 300   | $200$ | 100 |
| D | $6 \times 99$ :  | $600$ | 500   | 400 | H | $4 \times 24$ :  | $100$ | 200   | 300 |

4. Put a ring around the best estimate for each exercise.

- A How many wheels on 33 tricycles?



$100$  200 300

- B How many wheels on 68 cars?



100 200  $300$

- C There are 4 weeks in a month. How many weeks are in 26 months?

$100$  200 300

- D There are 52 weeks in a year. How many weeks are in 4 years?

100  $200$  300

- E There are 32 pupils in a class. How many pupils are in 3 classes?

$100$  200 300

1. There are 60 minutes in an hour. How many minutes are in 6 hours?

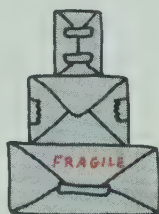
360 minutes

2. One ticket costs 17 cents. Jill wants to buy 4 tickets. How much money does she need? 68c



3. Mr. Small figured that his chickens laid 7 dozen eggs last week. How many eggs is this? 84 eggs

4. Bill mailed three packages. They cost 24 cents, 37 cents, and 52 cents. How much did it cost to mail all the packages? \$1.13



5. Sue mailed 5 packages. The mailing charge for each one was 27 cents. How much did Sue spend? \$1.35

6. Mr. Brown can drive his car 6 km on each litre of gas. How far can he drive on 18 litres of gas? 108 kilometres



7. Ms. Gray owns a small car and can drive her car 9 km on a litre of gas. How far can she drive on 18 litres of gas?

162 kilometres

8. How much farther can Ms. Gray drive on 18 litres of gas than

Mr. Brown? 54 kilometres

9. There are 12 months in a year. How many months are in 5 years? 60 months

10. There are 24 hours in a day. How many hours in three days? 72 hours

11. On a vacation trip Jan figured her father was driving at a rate of about 73 kilometres per hour. At this rate, how far would they go in 4 hours? 292 kilometres

12. John read that he would weigh about 2 times as much on Jupiter as he does on earth. About how much would John weigh on Jupiter if he weighs 42 kilograms on earth?

84 kg

13. In an auditorium the centre section of seats has 24 rows with 9 seats in each row. How many

seats are in this section? 216 seats

14. At 645 kilometres per hour, how far can an airplane travel in 3 hours?

1935 kilometres



1. Find the products.

A  $7 \times 10 = \underline{70}$

C  $30 \times 10 = \underline{300}$

E  $6 \times 40 = \underline{240}$

B  $7 \times 100 = \underline{700}$

D  $23 \times 10 = \underline{230}$

F  $50 \times 3 = \underline{150}$

2. Solve.

A  $4 \times 26 = (4 \times 20) + (4 \times \underline{6})$

B  $6 \times 13 = (6 \times 10) + (\underline{6} \times 3)$

3. Find the products.

A  $\begin{array}{r} 27 \\ \times 3 \\ \hline 81 \end{array}$

B  $\begin{array}{r} 51 \\ \times 7 \\ \hline 357 \end{array}$

C  $\begin{array}{r} 16 \\ \times 4 \\ \hline 64 \end{array}$

D  $\begin{array}{r} 34 \\ \times 6 \\ \hline 204 \end{array}$

E  $\begin{array}{r} 82 \\ \times 2 \\ \hline 164 \end{array}$

F  $\begin{array}{r} 94 \\ \times 3 \\ \hline 282 \end{array}$

G  $\begin{array}{r} 526 \\ \times 4 \\ \hline 2104 \end{array}$

H  $\begin{array}{r} 334 \\ \times 6 \\ \hline 2004 \end{array}$

I  $\begin{array}{r} 216 \\ \times 3 \\ \hline 648 \end{array}$

J  $\begin{array}{r} 5271 \\ \times 4 \\ \hline 21084 \end{array}$

K  $\begin{array}{r} 6423 \\ \times 3 \\ \hline 19269 \end{array}$

4. There are 52 weeks in a year. A good estimate for the number of weeks in 8 years is (ring one):

300

400

500

5. 36 apples in one box. How many apples in 7 boxes? 252

6. If each year had 365 days, how many days in 3 years? 1095

## CHANGE OF PACE

Work the puzzle.

Across

1.  $1000 - 2$
3.  $4 + 4 + 4 + 4$
5. Ten hundred
7.  $3 \times 6$
9. In 392 the 9 means  $\text{||||}$
10.  $4 \times 7$
12.  $3 \times 67 = 2\text{||||}$
14. Largest 4-digit number
16.  $7 \times \text{||||} = 70$
17.  $300 \times 3$

Down

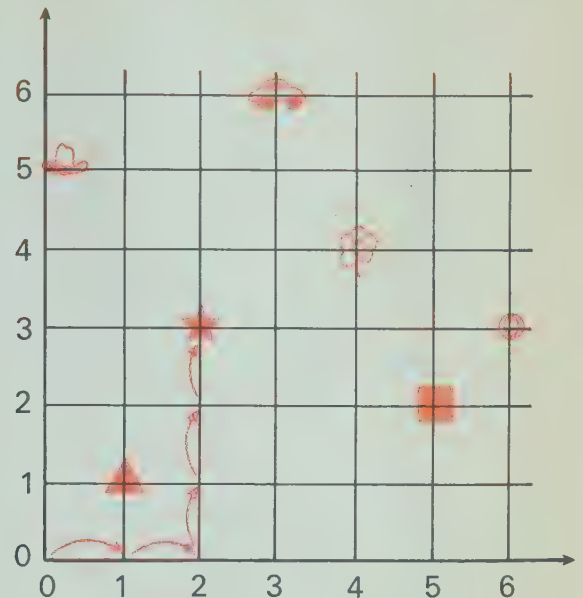
1.  $(9 \times 100) + 1$
2. 9 nines
3. 100 tens
4.  $4 \times 15$
6.  $999 - 90 = 9\text{||||}$
8.  $1658 \times 5$
11.  $88 < \text{||||} < 90$
13. 10 tens
14. One more than ninety
15.  $100 - 1$

1		2		3	4
9	9	8		1	6
0		5	6	0	0
		1	0	0	0
7	8		9		
1	8		9	0	
	10	11		12	13
	2	8		0	1
14			15		
9	9	9	9		0
16			17		
1	0		9	0	0



1. Give the missing numbers.

- A The ★ is "2 over and 3 up."
- B The ■ is 5 over and 2 up.
- C The ▲ is 1 over and 1 up.
- D The ☼ is 4 over and 4 up.
- E The ① is 6 over and 3 up.
- F The 🚗 is 3 over and 6 up.
- G The 🎩 is 0 over and 5 up.

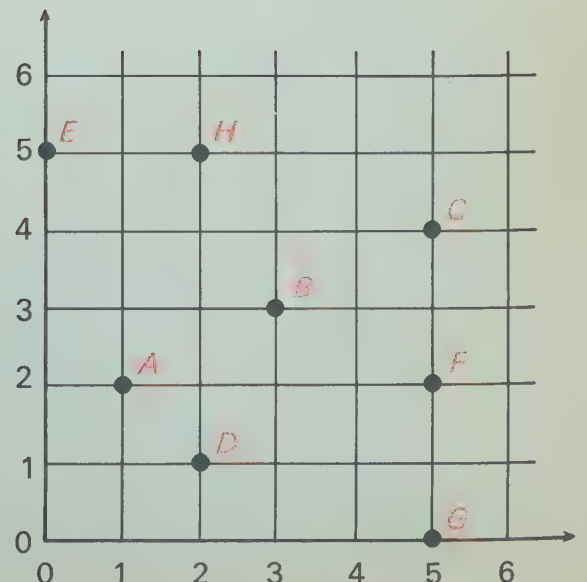


The 🚗 above is "3 over and 6 up." We write (3, 6).

The **co-ordinates** of the 🚗 are (3, 6).

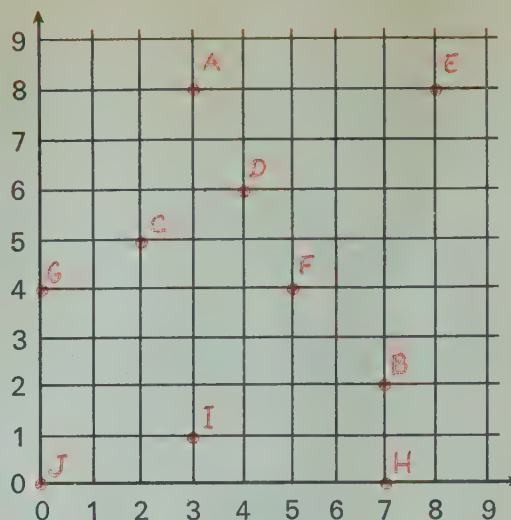
2. Fill in each blank with the correct letter or number.

- A The letter **H** is 2 over and 5 up.
- B The co-ordinates of **H** are (2, 5).
- C What letter is at (3, 3)? B
- D The co-ordinates of **C** are (5, 4).
- E The letter **F** is at (5, 2).
- F The letter A is at (1, 2).
- G The co-ordinates of **E** are (0, 5).



1. Use the grid at the right to graph each of these points. Write the letter beside it.

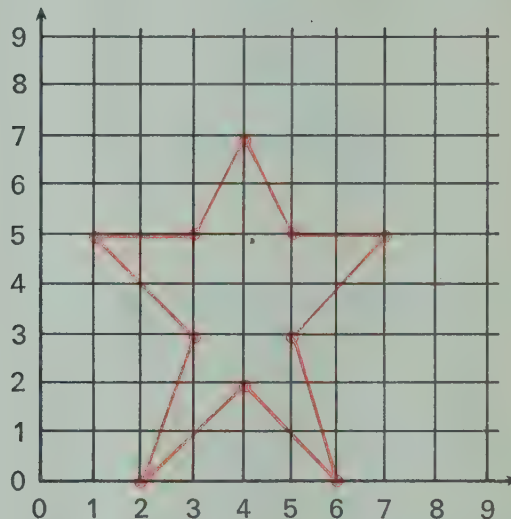
A	(3, 8)	F	(5, 4)
B	(7, 2)	G	(0, 4)
C	(2, 5)	H	(7, 0)
D	(4, 6)	I	(3, 1)
E	(8, 8)	J	(0, 0)



2. Draw a picture by graphing and connecting the points in the order given below.

$(2, 0) \rightarrow (3, 3) \rightarrow (1, 5)$   
 $\rightarrow (3, 5) \rightarrow (4, 7) \rightarrow (5, 5)$   
 $\rightarrow (7, 5) \rightarrow (5, 3) \rightarrow (6, 0)$   
 $\rightarrow (4, 2) \rightarrow (2, 0)$

*(See graph.)*



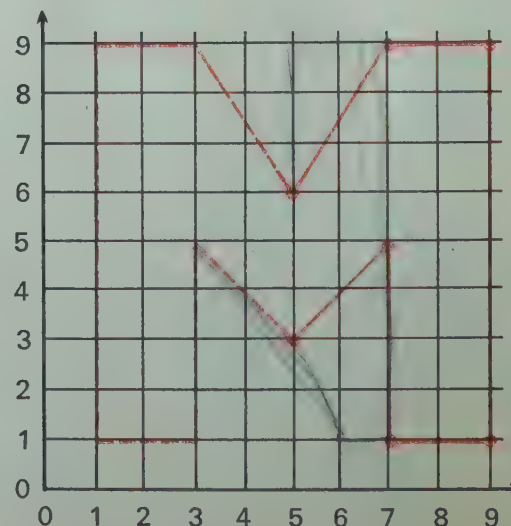
3. A Graph and connect the points in the order given below.

$(5, 3) \rightarrow (7, 5) \rightarrow (7, 1)$   
 $\rightarrow (9, 1) \rightarrow (9, 9)$   
 $\rightarrow (7, 9) \rightarrow (5, 6)$

*(Solid line segments on graph.)*

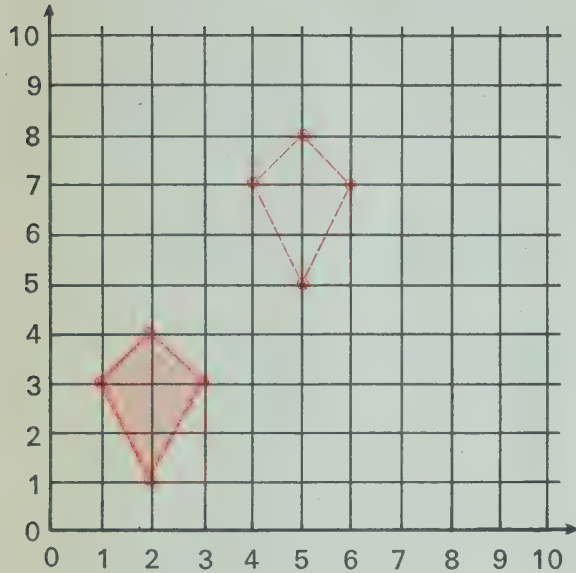
- B Draw the other half of the picture so that it is **symmetric**.

*(Dotted line segments on graph.)*



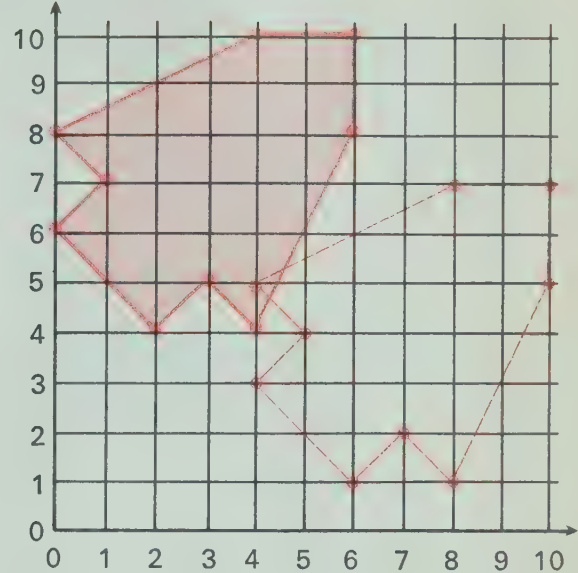
1. Move each point of the figure

3 over and 4 up.  
Then connect them.



2. Move each point of the figure

4 over and 3 down.  
Then connect them.



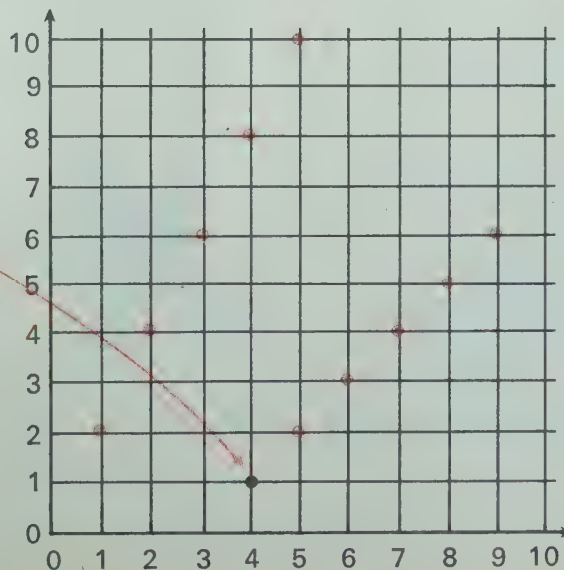
3. Graph the number pairs shown in the function table.

Example: If the input is 4 and the output is 1, the co-ordinates are (4, 1).

Function Rule

Subtract 3

Input	Output
4	1
5	2
6	3
7	4
8	5
9	6



4. Find the output numbers.  
Then graph the number pairs on the same grid used for exercise 3.

Function Rule

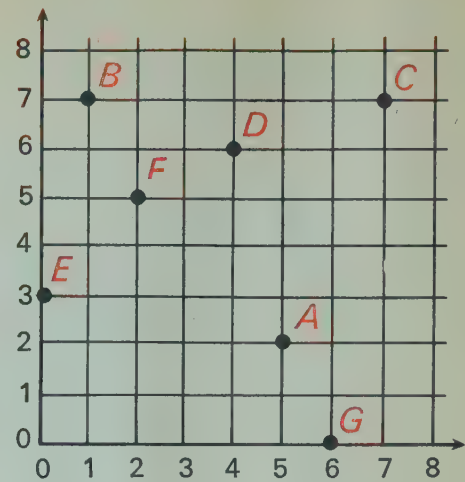
Multiply by 2

Input	Output
0	0
1	2
2	4
3	6
4	8
5	10

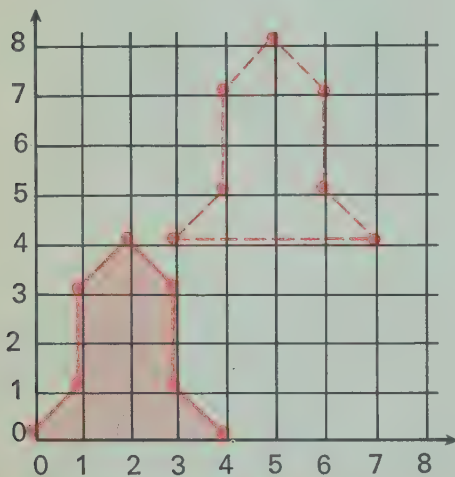


1. Give the correct number or letter for each blank.

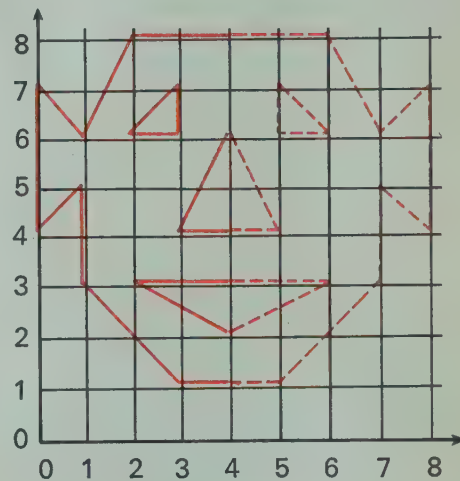
- A Point A is 5 over and 2 up.  
 B The co-ordinates of B are (1, 7).  
 C Point G is at (6, 0).  
 D The point at (0, 3) is E.  
 E The co-ordinates of C are (7, 7).  
 F Point F has co-ordinates (2, 5).



2. Show where the figure will be after each point is moved **3 over** and **4 up**.

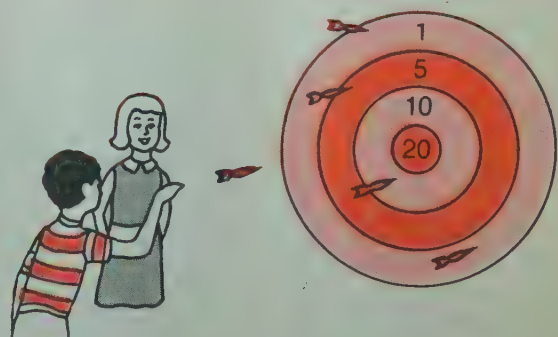


3. Draw the other half of the figure so that it will be **symmetric**.



## CHANGE OF PACE

1. How many points does Jim have on the first four darts? 17  
 2. If the fifth dart gets 20 points, how many points will he have in all? 37  
 3. When Jane threw the five darts, she got a score of 27. Her first two darts were "tens" and the third dart was a "one". Of the last two darts, one was a five and the other was a one.



4. Jim had a score of 42.  
 Give a possible scoring.  $\frac{20}{(or\ 20 + 20 + 1 + 1 + 0)} + \frac{10}{+} + \frac{10}{+} + \frac{1}{+} + \frac{1}{+} = 42$

1. Ring sets of 4 to find how many fours in 24.

There are 6 fours in 24.

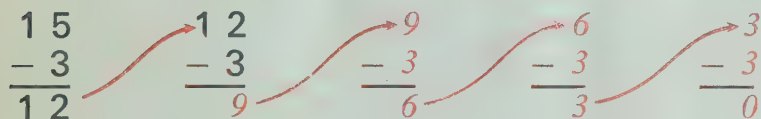


2. Complete the jumps to zero to find how many fives in 20.

There are 4 fives in 20.



3. Complete the subtracting to zero to find how many threes in 15.



There are 5 threes in 15.

4. First find the product. Then find the quotient.

A  $5 \times 7 = \boxed{35} \rightarrow 35 \div 7 = \boxed{5}$

B  $3 \times 8 = \boxed{24} \rightarrow 24 \div 8 = \boxed{3}$

C  $4 \times 9 = \boxed{36} \rightarrow 36 \div 4 = \boxed{9}$

D  $2 \times 7 = \boxed{14} \rightarrow 14 \div 7 = \boxed{2}$

E  $6 \times 4 = \boxed{24} \rightarrow 24 \div 6 = \boxed{4}$

F  $6 \times 5 = \boxed{30} \rightarrow 30 \div 5 = \boxed{6}$

G  $7 \times 3 = \boxed{21} \rightarrow 21 \div 7 = \boxed{3}$

H  $9 \times 5 = \boxed{45} \rightarrow 45 \div 9 = \boxed{5}$

5. First find the factor. Then find the quotient.

A  $\boxed{4} \times 8 = 32 \rightarrow 32 \div 8 = \boxed{4}$

B  $\boxed{6} \times 6 = 36 \rightarrow 36 \div 6 = \boxed{6}$

C  $\boxed{7} \times 5 = 35 \rightarrow 35 \div 5 = \boxed{7}$

D  $\boxed{6} \times 7 = 42 \rightarrow 42 \div 7 = \boxed{6}$

E  $\boxed{5} \times 8 = 40 \rightarrow 40 \div 8 = \boxed{5}$

F  $\boxed{6} \times 8 = 48 \rightarrow 48 \div 8 = \boxed{6}$

G  $\boxed{4} \times 4 = 16 \rightarrow 16 \div 4 = \boxed{4}$

H  $\boxed{7} \times 7 = 49 \rightarrow 49 \div 7 = \boxed{7}$

1. Find the products.

A  $5 \times 3 = \underline{15}$

B  $6 \times 4 = \underline{24}$

C  $6 \times 6 = \underline{36}$

$5 \times 3 \times 10 = \underline{150}$

$6 \times 4 \times 10 = \underline{240}$

$6 \times 6 \times 10 = \underline{360}$

$5 \times 30 = \underline{150}$

$6 \times 40 = \underline{240}$

$6 \times 60 = \underline{360}$

D  $8 \times 2 = \underline{16}$

E  $7 \times 3 = \underline{21}$

F  $4 \times 5 = \underline{20}$

$8 \times 2 \times 10 = \underline{160}$

$7 \times 3 \times 100 = \underline{2100}$

$4 \times 5 \times 100 = \underline{2000}$

$8 \times 20 = \underline{160}$

$7 \times 300 = \underline{2100}$

$4 \times 500 = \underline{2000}$

2. Find the two products. Then find the quotient.

A  $4 \times 7 = \underline{28} \rightarrow 4 \times 70 = \underline{280} \rightarrow 280 \div 4 = \underline{70}$

B  $6 \times 3 = \underline{18} \rightarrow 60 \times 3 = \underline{180} \rightarrow 180 \div 3 = \underline{60}$

C  $3 \times 5 = \underline{15} \rightarrow 3 \times 50 = \underline{150} \rightarrow 150 \div 3 = \underline{50}$

D  $6 \times 2 = \underline{12} \rightarrow 60 \times 2 = \underline{120} \rightarrow 120 \div 2 = \underline{60}$

E  $5 \times 60 = \underline{300} \rightarrow 5 \times 600 = \underline{3000} \rightarrow 3000 \div 5 = \underline{600}$

F  $60 \times 7 = \underline{420} \rightarrow 600 \times 7 = \underline{4200} \rightarrow 4200 \div 7 = \underline{600}$

G  $4 \times 40 = \underline{160} \rightarrow 4 \times 400 = \underline{1600} \rightarrow 1600 \div 4 = \underline{400}$

3. Find each missing factor. Then find the quotient.

A  $2 \times \underline{7} = 14 \rightarrow 2 \times \underline{70} = 140 \rightarrow 140 \div 2 = \underline{70}$

B  $4 \times \underline{3} = 12 \rightarrow 4 \times \underline{30} = 120 \rightarrow 120 \div 4 = \underline{30}$

C  $3 \times \underline{8} = 24 \rightarrow 3 \times \underline{80} = 240 \rightarrow 240 \div 3 = \underline{80}$

D  $5 \times \underline{6} = 30 \rightarrow 5 \times \underline{60} = 300 \rightarrow 300 \div 5 = \underline{60}$

E  $6 \times \underline{2} = 12 \rightarrow 6 \times \underline{20} = 120 \rightarrow 120 \div 6 = \underline{20}$

F  $2 \times \underline{30} = 60 \rightarrow 2 \times \underline{300} = 600 \rightarrow 600 \div 2 = \underline{300}$

G  $7 \times \underline{40} = 280 \rightarrow 7 \times \underline{400} = 2800 \rightarrow 2800 \div 7 = \underline{400}$

H  $9 \times \underline{50} = 450 \rightarrow 9 \times \underline{500} = 4500 \rightarrow 4500 \div 9 = \underline{500}$



1. A Give the output number on the function machine.
- B If the input number had been 420, the output number would be 60.

THE FUNCTION MACHINE	
FUNCTION RULE	
Divide by 7	
INPUT	OUTPUT
280	40

For exercises 2 through 9, think about the function machine and give the missing numbers and function rules.

2. Function Rule: Divide by 3
- |   | Input | Output |
|---|-------|--------|
|   | 180   | 60     |
|   | 240   | 80     |
| A | 120   | 40     |
| B | 90    | 30     |
| C | 150   | 50     |
| D | 0     | 0      |
3. Function Rule: Divide by 5
- |   | Input | Output |
|---|-------|--------|
|   | 150   | 30     |
|   | 200   | 40     |
| A | 250   | 50     |
| B | 100   | 20     |
| C | 350   | 70     |
| D | 50    | 10     |
4. Function Rule: Divide by 4
- |   | Input | Output |
|---|-------|--------|
|   | 120   | 30     |
| A | 160   | 40     |
| B | 80    | 20     |
| C | 200   | 50     |
| D | 240   | 60     |
| E | 0     | 0      |
5. Function Rule: Divide by 6
- |   | Input | Output |
|---|-------|--------|
|   | 360   | 60     |
| A | 120   | 20     |
| B | 180   | 30     |
| C | 60    | 10     |
| D | 240   | 40     |
| E | 300   | 50     |
6. Function Rule: Divide by 2
- |   | Input | Output |
|---|-------|--------|
| A | 80    | 40     |
| B | 120   | 60     |
| C | 0     | 0      |
| D | 20    | 10     |
| E | 100   | 50     |
| F | 60    | 30     |
7. Function Rule: Divide by 7
- |   | Input | Output |
|---|-------|--------|
| A | 70    | 10     |
| B | 280   | 40     |
| C | 350   | 50     |
| D | 140   | 20     |
| E | 490   | 70     |
| F | 210   | 30     |
8. Function Rule: Divide by 4
- |   | Input | Output |
|---|-------|--------|
|   | 160   | 40     |
|   | 280   | 70     |
|   | 200   | 50     |
| B | 80    | 20     |
| C | 40    | 10     |
| D | 120   | 30     |
9. Function Rule: Divide by 3
- |   | Input | Output |
|---|-------|--------|
|   | 30    | 10     |
|   | 150   | 50     |
|   | 90    | 30     |
| B | 120   | 40     |
| C | 270   | 90     |
| D | 0     | 0      |

1. Find the differences. Then fill in the blanks.

A  $18 \div 3$

$$\begin{array}{r} 18 \\ -3 \\ \hline 15 \end{array} \rightarrow \begin{array}{r} 15 \\ -3 \\ \hline 12 \end{array} \rightarrow \begin{array}{r} 12 \\ -3 \\ \hline 9 \end{array} \rightarrow \begin{array}{r} 9 \\ -3 \\ \hline 6 \end{array} \rightarrow \begin{array}{r} 6 \\ -3 \\ \hline 3 \end{array} \rightarrow \begin{array}{r} 3 \\ -3 \\ \hline 0 \end{array}$$

Three was subtracted 6 times.

There are 6 threes in 18.  $\rightarrow 18 \div 3 = \underline{6}$

B  $35 \div 5$

$$\begin{array}{r} 35 \\ -5 \\ \hline 30 \end{array} \rightarrow \begin{array}{r} 30 \\ -5 \\ \hline 25 \end{array} \rightarrow \begin{array}{r} 25 \\ -5 \\ \hline 20 \end{array} \rightarrow \begin{array}{r} 20 \\ -5 \\ \hline 15 \end{array} \rightarrow \begin{array}{r} 15 \\ -5 \\ \hline 10 \end{array} \rightarrow \begin{array}{r} 10 \\ -5 \\ \hline 5 \end{array} \rightarrow \begin{array}{r} 5 \\ -5 \\ \hline 0 \end{array}$$

Five was subtracted 7 times.

There are 7 fives in 35.  $\rightarrow 35 \div 5 = \underline{7}$

2. Find the differences. Then solve the division equation.

A  $24 \div 6$

$$\begin{array}{r} 24 \\ -6 \\ \hline 18 \\ -6 \\ \hline 12 \\ -6 \\ \hline 6 \\ -6 \\ \hline 0 \end{array}$$

$24 \div 6 = \underline{4}$

B  $27 \div 9$

$$\begin{array}{r} 27 \\ -9 \\ \hline 18 \\ -9 \\ \hline 9 \\ -9 \\ \hline 0 \end{array}$$

$27 \div 9 = \underline{3}$

C  $35 \div 7$

$$\begin{array}{r} 35 \\ -7 \\ \hline 28 \\ -7 \\ \hline 21 \\ -7 \\ \hline 14 \\ -7 \\ \hline 7 \\ -7 \\ \hline 0 \end{array}$$

$35 \div 7 = \underline{5}$

D  $32 \div 8$

$$\begin{array}{r} 32 \\ -8 \\ \hline 24 \\ -8 \\ \hline 16 \\ -8 \\ \hline 8 \\ -8 \\ \hline 0 \end{array}$$

$32 \div 8 = \underline{4}$

1. Mike and Sandy worked the same problem. Find the differences and solve the equation.

*Mike*

$$\begin{array}{r}
 42 \\
 -7 \\
 \hline
 35 \\
 -7 \\
 \hline
 28 \\
 -7 \\
 \hline
 21 \\
 -7 \\
 \hline
 14 \\
 -7 \\
 \hline
 7 \\
 -7 \\
 \hline
 0
 \end{array}$$

$42 \div 7 = \boxed{6}$

*Sandy*

$$\begin{array}{r}
 42 \\
 -14 \leftarrow 2 \text{ sevens} \\
 \hline
 28 \\
 -14 \leftarrow 2 \text{ sevens} \\
 \hline
 14 \\
 -14 \leftarrow 2 \text{ sevens} \\
 \hline
 0
 \end{array}$$

$42 \div 7 = \boxed{6}$

2. Mike subtracted one seven at a time.

- A How many sevens did Sandy subtract each time? 2
- B Did they both find the same number of sevens in 42? Yes
- C Whose method do you think is shorter? Sandy's

3. Find the differences. Then solve the division equation.

A

$$\begin{array}{r}
 36 \\
 -12 \leftarrow 3 \text{ fours} \\
 \hline
 24 \\
 -12 \leftarrow 3 \text{ fours} \\
 \hline
 12 \\
 -12 \leftarrow 3 \text{ fours} \\
 \hline
 0
 \end{array}$$

$36 \div 4 = \boxed{9}$

B

$$\begin{array}{r}
 42 \\
 -24 \leftarrow 4 \text{ sixes} \\
 \hline
 18 \\
 -18 \leftarrow 3 \text{ sixes} \\
 \hline
 0
 \end{array}$$

$42 \div 6 = \boxed{7}$

C

$$\begin{array}{r}
 45 \\
 -18 \leftarrow 2 \text{ nines} \\
 \hline
 27 \\
 -18 \leftarrow 2 \text{ nines} \\
 \hline
 9 \\
 -9 \leftarrow 1 \text{ nine} \\
 \hline
 0
 \end{array}$$

$45 \div 9 = \boxed{5}$



## ● Finding Quotients by Subtraction

Give the number for each . Then solve the division equation.

1.  $42 \div 3$

How many threes in 42?

$$\begin{array}{r} 42 \\ - 30 \leftarrow 10 \text{ threes} \\ \hline 12 \\ - 12 \leftarrow 4 \text{ threes} \\ \hline 0 \end{array}$$



$42 \div 3 = 14$

2.  $36 \div 2$

How many twos in 36?

$$\begin{array}{r} 36 \\ - 20 \leftarrow 10 \text{ twos} \\ \hline 16 \\ - 16 \leftarrow 8 \text{ twos} \\ \hline 0 \end{array}$$



$36 \div 2 = 18$

3.  $56 \div 4$

How many fours in 56?

$$\begin{array}{r} 56 \\ - 40 \leftarrow 10 \text{ fours} \\ \hline 16 \\ - 16 \leftarrow 4 \text{ fours} \\ \hline 0 \end{array}$$



$56 \div 4 = 14$

4.  $60 \div 5$

How many fives in 60?

$$\begin{array}{r} 60 \\ - 50 \leftarrow 10 \text{ fives} \\ \hline 10 \\ - 10 \leftarrow 2 \text{ fives} \\ \hline 0 \end{array}$$



$60 \div 5 = 12$

5.  $64 \div 4$

How many fours in 64?

$$\begin{array}{r} 64 \\ - 40 \leftarrow 10 \text{ fours} \\ \hline 24 \\ - 24 \leftarrow 6 \text{ fours} \\ \hline 0 \end{array}$$



$64 \div 4 = 16$

6.  $51 \div 3$

How many threes in 51?

$$\begin{array}{r} 51 \\ - 30 \leftarrow 10 \text{ threes} \\ \hline 21 \\ - 21 \leftarrow 7 \text{ threes} \\ \hline 0 \end{array}$$



$51 \div 3 = 17$

7.  $32 \div 2$

How many twos in 32?

$$\begin{array}{r} 32 \\ - 20 \leftarrow 10 \text{ twos} \\ \hline 12 \\ - 12 \leftarrow 6 \text{ twos} \\ \hline 0 \end{array}$$



$32 \div 2 = 16$

8.  $84 \div 7$

How many sevens in 84?

$$\begin{array}{r} 84 \\ - 70 \leftarrow 10 \text{ sevens} \\ \hline 14 \\ - 14 \leftarrow 2 \text{ sevens} \\ \hline 0 \end{array}$$



$84 \div 7 = 12$

9.  $78 \div 6$

How many sixes in 78?

$$\begin{array}{r} 78 \\ - 60 \leftarrow 10 \text{ sixes} \\ \hline 18 \\ - 18 \leftarrow 3 \text{ sixes} \\ \hline 0 \end{array}$$



$78 \div 6 = 13$

Find the number for each  . Then solve the division equation.

1.  $75 \div 3$

$$\begin{array}{r} 75 \\ - 30 \leftarrow 10 \text{ threes} \\ \hline 45 \\ - 30 \leftarrow 10 \text{ threes} \\ \hline 15 \\ - 15 \leftarrow 5 \text{ threes} \\ \hline 0 \end{array}$$

↓

$75 \div 3 = 25$

2.  $138 \div 6$

$$\begin{array}{r} 138 \\ - 60 \leftarrow 10 \text{ sixes} \\ \hline 78 \\ - 60 \leftarrow 10 \text{ sixes} \\ \hline 18 \\ - 18 \leftarrow 3 \text{ sixes} \\ \hline 0 \end{array}$$

↓

$138 \div 6 = 23$

3.  $72 \div 2$

$$\begin{array}{r} 72 \\ - 20 \leftarrow 10 \text{ twos} \\ \hline 52 \\ - 20 \leftarrow 10 \text{ twos} \\ \hline 32 \\ - 20 \leftarrow 10 \text{ twos} \\ \hline 12 \\ - 12 \leftarrow 6 \text{ twos} \\ \hline 0 \end{array}$$

↓

$72 \div 2 = 36$

4.  $215 \div 5$

$$\begin{array}{r} 215 \\ - 50 \leftarrow 10 \text{ fives} \\ \hline 165 \\ - 50 \leftarrow 10 \text{ fives} \\ \hline 115 \\ - 50 \leftarrow 10 \text{ fives} \\ \hline 65 \\ - 50 \leftarrow 10 \text{ fives} \\ \hline 15 \\ - 15 \leftarrow 3 \text{ fives} \\ \hline 0 \end{array}$$

↓

$215 \div 5 = 43$

5.  $136 \div 4$

$$\begin{array}{r} 136 \\ - 40 \leftarrow 10 \text{ fours} \\ \hline 96 \\ - 40 \leftarrow 10 \text{ fours} \\ \hline 56 \\ - 40 \leftarrow 10 \text{ fours} \\ \hline 16 \\ - 16 \leftarrow 4 \text{ fours} \\ \hline 0 \end{array}$$

↓

$136 \div 4 = 34$

6.  $294 \div 7$

$$\begin{array}{r} 294 \\ - 70 \leftarrow 10 \text{ sevens} \\ \hline 224 \\ - 70 \leftarrow 10 \text{ sevens} \\ \hline 154 \\ - 70 \leftarrow 10 \text{ sevens} \\ \hline 84 \\ - 70 \leftarrow 10 \text{ sevens} \\ \hline 14 \\ - 14 \leftarrow 2 \text{ sevens} \\ \hline 0 \end{array}$$

↓

$294 \div 7 = 42$

1. Give the number for each  . Then solve the division equation.

A  $96 \div 4$

How many fours in 96?

$$\begin{array}{r} 96 \\ - 80 \leftarrow 20 \text{ fours} \\ \hline 16 \\ - 16 \leftarrow 4 \text{ fours} \\ \hline 0 \end{array}$$

$96 \div 4 = 24$

B  $160 \div 5$

How many fives in 160?

$$\begin{array}{r} 160 \\ - 150 \leftarrow 30 \text{ fives} \\ \hline 10 \\ - 10 \leftarrow 2 \text{ fives} \\ \hline 0 \end{array}$$

$160 \div 5 = 32$

c  $94 \div 2$

How many twos in 94?

$$\begin{array}{r} 94 \\ - 80 \leftarrow 40 \text{ twos} \\ \hline 14 \\ - 14 \leftarrow 7 \text{ twos} \\ \hline 0 \end{array}$$

$94 \div 2 = 47$

D  $141 \div 3$

How many threes in 141?

$$\begin{array}{r} 141 \\ - 120 \leftarrow 40 \text{ threes} \\ \hline 21 \\ - 21 \leftarrow 7 \text{ threes} \\ \hline 0 \end{array}$$

$141 \div 3 = 47$

E  $144 \div 4$

How many fours in 144?

$$\begin{array}{r} 144 \\ - 120 \leftarrow 30 \text{ fours} \\ \hline 24 \\ - 24 \leftarrow 6 \text{ fours} \\ \hline 0 \end{array}$$

$144 \div 4 = 36$

F  $224 \div 7$

How many sevens in 224?

$$\begin{array}{r} 224 \\ - 210 \leftarrow 30 \text{ sevens} \\ \hline 14 \\ - 14 \leftarrow 2 \text{ sevens} \\ \hline 0 \end{array}$$

$224 \div 7 = 32$

2. Use your own method of subtracting to find these quotients. *Computation may vary.*

A  $84 \div 6 = 14$

B  $92 \div 4 = 23$

c  $105 \div 3 = 35$



1. The example shows a new way to write division exercises. The numbers in the rings tell what multiple of the divisor was subtracted.

divisor

$$\begin{array}{r}
 16 \\
 3 \overline{) 48} \\
 \underline{- 30} \\
 18 \\
 \underline{- 18} \\
 0
 \end{array}$$

Diagram showing the division process with rings indicating the multiples subtracted: 10 for the first subtraction (30) and 6 for the second subtraction (18).

- A How many threes were subtracted the first time? 10
- B How many threes were subtracted the second time? 6
- C How many threes were subtracted in all? 16
- D Solve:  $48 \div 3 = \boxed{16}$

2. Give the number for each ring. Then write the quotient in the

A

$$\begin{array}{r}
 15 \\
 4 \overline{) 60} \\
 \underline{- 40} \\
 20 \\
 \underline{- 20} \\
 0
 \end{array}$$

Diagram showing the division process with rings for the multiples subtracted.

B

$$\begin{array}{r}
 26 \\
 3 \overline{) 78} \\
 \underline{- 30} \\
 48 \\
 \underline{- 30} \\
 18 \\
 \underline{- 18} \\
 0
 \end{array}$$

Diagram showing the division process with rings for the multiples subtracted.

C

$$\begin{array}{r}
 24 \\
 7 \overline{) 168} \\
 \underline{- 70} \\
 98 \\
 \underline{- 70} \\
 28 \\
 \underline{- 28} \\
 0
 \end{array}$$

Diagram showing the division process with rings for the multiples subtracted.

3. Find the quotients. *Computation may vary.*

A

$$\begin{array}{r}
 18 \\
 3 \overline{) 54} \\
 \underline{- 30} \\
 24 \\
 \underline{- 24} \\
 0
 \end{array}$$

Diagram showing the division process with rings for the multiples subtracted.

B

$$\begin{array}{r}
 13 \\
 5 \overline{) 65} \\
 \underline{- 50} \\
 15 \\
 \underline{- 15} \\
 0
 \end{array}$$

Diagram showing the division process with rings for the multiples subtracted.

C

$$\begin{array}{r}
 25 \\
 4 \overline{) 100} \\
 \underline{- 80} \\
 20 \\
 \underline{- 20} \\
 0
 \end{array}$$

Diagram showing the division process with rings for the multiples subtracted.

Find the quotients. *Computation may vary.*

$$\begin{array}{r} 16 \\ 2 \overline{) 32} \\ \underline{20} \\ 12 \\ \underline{12} \\ 0 \end{array}$$

10  
6

$$\begin{array}{r} 23 \\ 3 \overline{) 69} \\ \underline{60} \\ 9 \\ \underline{9} \\ 0 \end{array}$$

20  
3

$$\begin{array}{r} 14 \\ 5 \overline{) 70} \\ \underline{50} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

10  
4

$$\begin{array}{r} 29 \\ 4 \overline{) 116} \\ \underline{80} \\ 36 \\ \underline{36} \\ 0 \end{array}$$

20  
9

$$\begin{array}{r} 27 \\ 5 \overline{) 135} \\ \underline{100} \\ 35 \\ \underline{35} \\ 0 \end{array}$$

20  
7

$$\begin{array}{r} 32 \\ 7 \overline{) 224} \\ \underline{210} \\ 14 \\ \underline{14} \\ 0 \end{array}$$

30  
2

## CHANGE OF PACE

Find the number for each     . Check your work.

1. 7  $\xrightarrow{\text{add } 6}$  13

5. 13  $\xrightarrow{\text{subtract } 5}$  8  $\xrightarrow{\text{add } 9}$  17

2. 16  $\xrightarrow{\text{subtract } 4}$  12

6. 10  $\xrightarrow{\text{subtract } 4}$  6  $\xrightarrow{\text{multiply by } 2}$  12

3. 22  $\xrightarrow{\text{add } 10}$  32

7. 17  $\xrightarrow{\text{add } 7}$  24  $\xrightarrow{\text{divide by } 3}$  8

4. 6  $\xrightarrow{\text{multiply by } 2}$  12

8. 15  $\xrightarrow{\text{divide by } 2}$  8  $\xrightarrow{\text{subtract } 8}$  0

1. Answer **add**, **subtract**, **multiply**, or **divide** to tell what operation you would use to solve the problem.

A Tom had  $\square\square\square$  marbles. He got  $\square\square\square$  more marbles. How many does he have now? add

B Jane had  $\square\square\square$  cents. She spent  $\square\square\square$  cents. How much does she have left? subtract

C Sue practiced her music lesson for  $\square\square\square$  minutes. This was  $\square\square\square$  minutes more than she practiced last time. How long did she practice last time? subtract

D In Jim's room there were  $\square\square$  rows of seats and  $\square\square\square$  seats in each row. How many seats were there? multiply

E Pat had  $\square\square\square$  records and Pam had  $\square\square$  records. How many more records did Pat have than Pam? subtract

F Jack had  $\square\square$  baseball cards. He put them in stacks with  $\square\square$  cards in each stack. How many stacks of cards did he have? divide

2. Short stories. Solve the problems.

A 7 bags. 12 balls in each bag. How many balls? 84 balls

B 364 days. 7 days a week. How many weeks? 52

C 24 bottles of pop in a case. Drank 15 of them. How many left? 9

D 128 books in 8 boxes. How many books in each box?

16 books

E 36 cents for a litre of milk. 4 glasses in a litre. At this rate, how much is a glass of milk? 9¢

F 315 chairs. 5 rows (same number in each). How many chairs in each row? 63

G 12 in a dozen. 8 dozen eggs. How many eggs? 96

H 216 horseshoes. 4 shoes per horse. How many horses? 54 horses



1. Study the examples. Then answer the questions.

**A**

$$\begin{array}{r}
 \text{Quotient} \rightarrow 14 \\
 \text{Divisor} \rightarrow 3 \overline{) 42} \\
 \underline{- 30} \\
 12 \\
 \underline{- 12} \\
 0 \\
 \text{Remainder} \rightarrow
 \end{array}$$

10

4

**B**

$$\begin{array}{r}
 13 \\
 5 \overline{) 67} \\
 \underline{50} \\
 17 \\
 \underline{15} \\
 2
 \end{array}$$

10

3

**C**

$$\begin{array}{r}
 12 \\
 6 \overline{) 75} \\
 \underline{60} \\
 15 \\
 \underline{12} \\
 3
 \end{array}$$

10

2

In example A, the remainder is 0. In examples B and C, the remainder is **not** zero.

- A What is the quotient in example A? 14
- B What is the divisor in example A? 3
- C What is the quotient in example B? 13
- D What is the divisor in example B? 5
- E What is the remainder in example B? 2
- F What is the remainder in example C? 3

2. Find the quotients and remainders. Remember, the remainder may not be zero. *Computation may vary.*

**A**

$$\begin{array}{r}
 25 \\
 4 \overline{) 103} \\
 \underline{80} \\
 23 \\
 \underline{20} \\
 3
 \end{array}$$

20

5

**B**

$$\begin{array}{r}
 23 \\
 6 \overline{) 139} \\
 \underline{120} \\
 19 \\
 \underline{18} \\
 1
 \end{array}$$

20

3

**C**

$$\begin{array}{r}
 25 \\
 6 \overline{) 155} \\
 \underline{120} \\
 35 \\
 \underline{30} \\
 5
 \end{array}$$

20

5

**D**

$$\begin{array}{r}
 31 \\
 7 \overline{) 222} \\
 \underline{210} \\
 12 \\
 \underline{7} \\
 5
 \end{array}$$

30

1

**E**

$$\begin{array}{r}
 88 \\
 3 \overline{) 265} \\
 \underline{240} \\
 25 \\
 \underline{24} \\
 1
 \end{array}$$

80

8

**F**

$$\begin{array}{r}
 82 \\
 9 \overline{) 738} \\
 \underline{720} \\
 18 \\
 \underline{18} \\
 0
 \end{array}$$

80

2

1. Use the check suggested by the arrows to tell which of the exercises have been completed correctly. Ring one of the words, "correct" or "incorrect," for each exercise.

$$\begin{array}{r} 4 \overline{) 27} \\ \underline{24} \\ 3 \end{array}$$

Diagram: An arrow points from the quotient 6 to the divisor 4, and another arrow points from the remainder 3 to the product 24. The word "correct" is circled.

correct  
incorrect

$$\begin{array}{r} 3 \overline{) 22} \\ \underline{21} \\ 1 \end{array}$$

Diagram: An arrow points from the quotient 7 to the divisor 3, and another arrow points from the remainder 1 to the product 21. The word "correct" is circled.

correct  
incorrect

$$\begin{array}{r} 5 \overline{) 37} \\ \underline{35} \\ 2 \end{array}$$

Diagram: An arrow points from the quotient 7 to the divisor 5, and another arrow points from the remainder 2 to the product 35. The word "correct" is circled.

correct  
incorrect

$$\begin{array}{r} 6 \overline{) 20} \\ \underline{18} \\ 2 \end{array}$$

Diagram: An arrow points from the quotient 3 to the divisor 6, and another arrow points from the remainder 2 to the product 18. The word "correct" is circled.

correct  
incorrect

$$\begin{array}{r} 5 \overline{) 30} \\ \underline{30} \\ 0 \end{array}$$

Diagram: An arrow points from the quotient 6 to the divisor 5, and another arrow points from the remainder 0 to the product 30. The word "correct" is circled.

correct  
incorrect

$$\begin{array}{r} 2 \overline{) 11} \\ \underline{10} \\ 1 \end{array}$$

Diagram: An arrow points from the quotient 5 to the divisor 2, and another arrow points from the remainder 1 to the product 10. The word "correct" is circled.

correct  
incorrect

$$\begin{array}{r} 4 \overline{) 22} \\ \underline{20} \\ 2 \end{array}$$

Diagram: An arrow points from the quotient 5 to the divisor 4, and another arrow points from the remainder 2 to the product 20. The word "correct" is circled.

correct  
incorrect

$$\begin{array}{r} 6 \overline{) 42} \\ \underline{40} \\ 2 \end{array}$$

Diagram: An arrow points from the quotient 7 to the divisor 6, and another arrow points from the remainder 2 to the product 40. The word "correct" is circled.

correct  
incorrect

2. Find the quotient and remainder. Then check your answer. *Computation may vary.*

A 
$$\begin{array}{r} 8 \\ 5 \overline{) 42} \\ \underline{40} \\ 2 \end{array}$$

$$(5 \times 8) + 2 = 42$$

B 
$$\begin{array}{r} 6 \\ 4 \overline{) 25} \\ \underline{24} \\ 1 \end{array}$$

$$(4 \times 6) + 1 = 25$$

C 
$$\begin{array}{r} 5 \\ 6 \overline{) 35} \\ \underline{30} \\ 5 \end{array}$$

$$(6 \times 5) + 5 = 35$$

D 
$$\begin{array}{r} 32 \\ 5 \overline{) 163} \\ \underline{150} \\ 13 \\ \underline{10} \\ 3 \end{array}$$

$$(5 \times 32) + 3 = 163$$

E 
$$\begin{array}{r} 22 \\ 8 \overline{) 176} \\ \underline{160} \\ 16 \\ \underline{16} \\ 0 \end{array}$$

$$(8 \times 22) + 0 = 176$$

F 
$$\begin{array}{r} 22 \\ 2 \overline{) 45} \\ \underline{40} \\ 5 \\ \underline{4} \\ 1 \end{array}$$

$$(2 \times 22) + 1 = 45$$



1. Find the two products. Then find the quotient.

A  $3 \times 6 = \underline{18} \rightarrow 3 \times 60 = \underline{180} \rightarrow 180 \div 3 = \underline{60}$

B  $4 \times 60 = \underline{240} \rightarrow 4 \times 600 = \underline{2400} \rightarrow 2400 \div 4 = \underline{600}$

2. Find each missing factor. Then find the quotient.

A  $4 \times \underline{3} = 12 \rightarrow 4 \times \underline{30} = 120 \rightarrow 120 \div 4 = \underline{30}$

B  $5 \times \underline{50} = 250 \rightarrow 5 \times \underline{500} = 2500 \rightarrow 2500 \div 5 = \underline{500}$

3. Find the quotient and remainder. Then check your answer. *Computation may vary.*

A 
$$\begin{array}{r} 23 \\ 6 \overline{)138} \\ \underline{120} \\ 18 \\ \underline{18} \\ 0 \end{array}$$

$(6 \times 23) + 0 = 138$

B 
$$\begin{array}{r} 38 \\ 3 \overline{)115} \\ \underline{90} \\ 25 \\ \underline{24} \\ 1 \end{array}$$

$(3 \times 38) + 1 = 115$

C 
$$\begin{array}{r} 54 \\ 4 \overline{)219} \\ \underline{200} \\ 19 \\ \underline{16} \\ 3 \end{array}$$

$(4 \times 54) + 3 = 219$

## CHANGE OF PACE

Work the puzzle.

### Across

1. 11 tens
3.  $300 + 60 + 1$
6.  $5 \times 17$
7. 100 tens
8.  $1000 - 1$
10.  $5 \times 70$
11.  $607 - 297$
13.  $4 \times (8 \times 10)$
14.  $667 \times 10$
17. Next prime after 7
19.  $103 + 156 + 273$
20.  $(12 \times 5) \times 10$

### Down

1.  $3 \times 6$
2.  $836 + 759$
3.  $(4 \times 8) - 2$
4. An estimate for 59
5.  $10 \times 10 \times 10$
7. 1 ten and 9
9.  $180 \div 2$
10.  $613 \times 5$
11.  $192 \div 6$
12. Ten hundred and ten
13. In 236 the 3 means  $\square$ .
15.  $315 \div 5$
16.  $71 < \square < 73$
18.  $316 = 300 + \square + 6$

1 1	2 1			3 3	4 6	5 1
6 8			7 1		0	0
	8 9	9 9				0
10 3				11 3	12 1	0
			13 3		2	0
14 6	15 6	16 7			17 1	18 1
19 5				20 6	0	0





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